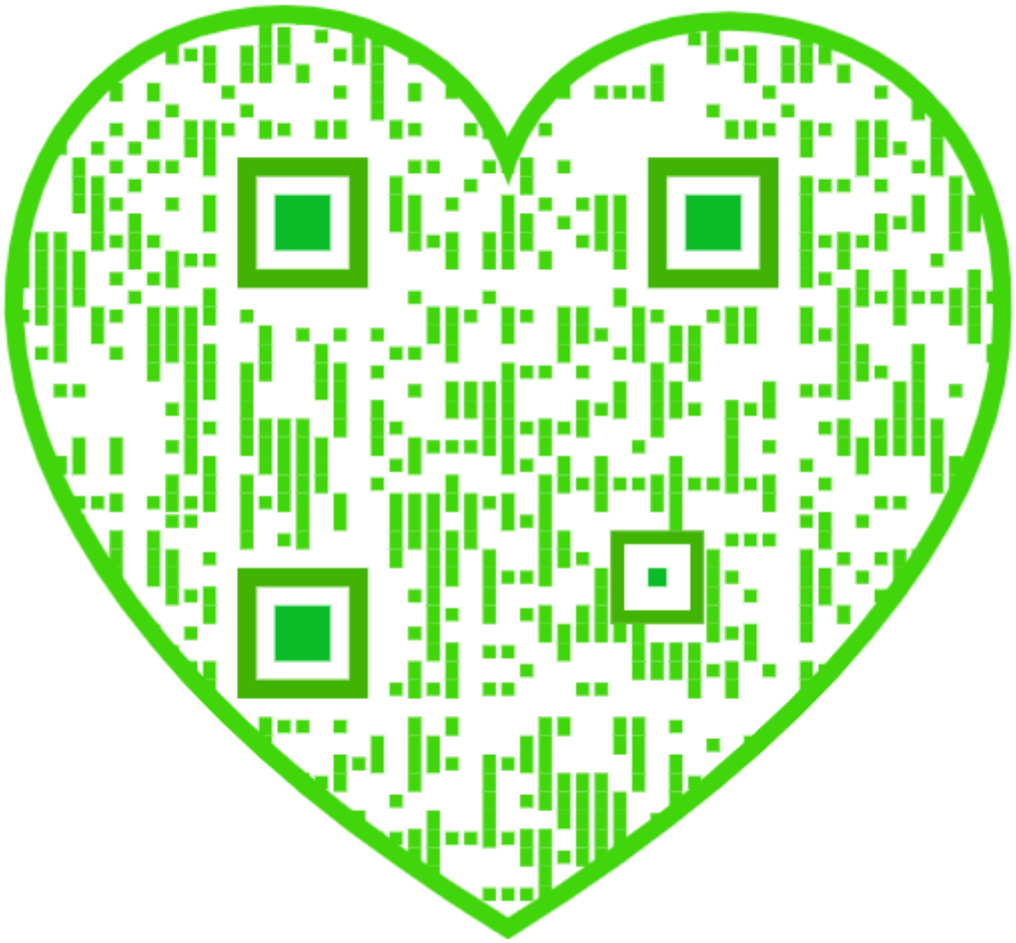

H.S. Delay

Preventive Medicine in the Home

A Plain Treatise on Hygiene, Sanitation, Prevention of Sickness, Modes of Transmission of the Various Kinds of Infection and Contagion, with Means of Prevention of Same; Care of the Sick and Injured; Household Remedies, Household Economics, Home Nursing, Etc.

By John Nelson Goltra, A. M., M. D.

VOLUME V

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PART XII
FIRST AID IN INJURY

"Nothing is more certain than the unexpected."—J. A. AUSTIN, M. D.

PART XII

FIRST AID IN INJURY

THIS part of the work is not intended to transform the reader into a surgeon. All the hand-books printed could not do that. But it *is* intended to show just what is to be done in any emergency, so that the injured person may be made as comfortable and as safe as though the surgeon were there.

TEN EMERGENCY HINTS

(1) Stop the bleeding, if severe.

(2) Do not touch an open wound with the fingers.

(3) Note the nature of the injuries, and put injured persons in comfortable place and positions.

(4) Summon a surgeon.

(5) Do not disturb the blood clots.

(6) Never probe for a bullet.

(7) Pick shreds of clothing and splinters or dirt from the wound.

(8) Then bring edges of the wound together, but without touching them.

(9) Pack the wound with gauze or absorbent cotton, and apply bandage.

(10) Bind on splints if bones are broken.

FIRST AID IN INJURY

GENERAL HINTS

Keep a Cool Head

Knowledge of anatomy and surgery is not essential to intelligent and successful work in caring for the injured. Keep cool. If there are no bleeding points which require your interference, first find out in a general way what sort of an injury the person or each person has sustained, then send a written message to the surgeon if possible. If not, see that the messenger is able to tell just what has happened, so that the surgeon may have the appliances he will need when he arrives.

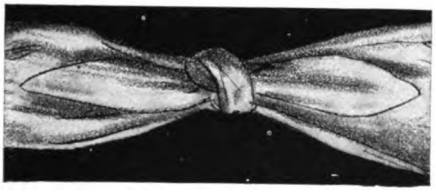
While it is well to pick out of the wound any gross material which might carry poisonous infection with it, yet we must remember that a wound is in itself perfectly free from sepsis (poisoning), while our fingers and even unboiled water, no matter how pure, are not. In cleaning out a wound therefore, we must be careful never to allow anything but the dressings to touch it.

Fresh Blood Antiseptic

Of course an exception to this rule will be where very rapid and dangerous bleeding requires us to choose the lesser of the two dangers and put our hands into a wound for the sake of seizing a cut end of a blood-vessel.

Besides, we may remember that the fresh blood is itself antiseptic, and will cleanse and protect a wound, and stop the bleeding as soon as it clots, and so we never disturb a clot. If the red blood should be pouring up under a clot, it may be well to apply pres-

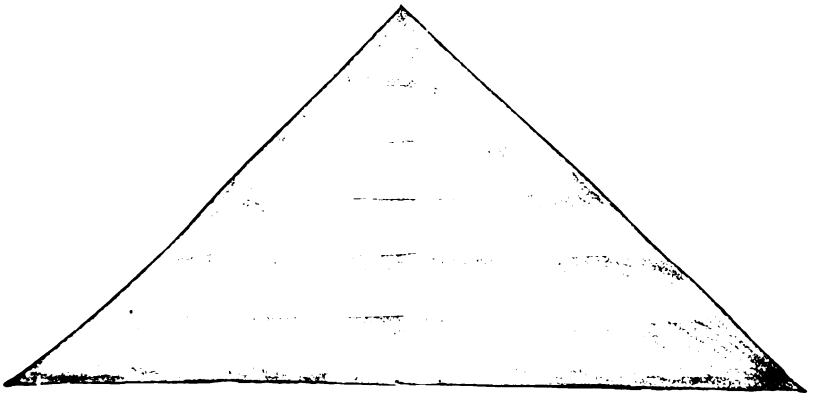
Rolling a bandage



Reef-knot of bandage

Reef-knot

To prevent fainting keep the head lower than the body



The triangular Bandage

TO PREVENT FAINTING

sure upon the clot, provided that will stop the bleeding as it often will.

To Stop Hemorrhage

In applying pressure to a wound to stop the hemorrhage either gauze or absorbent cotton may be used, or if neither is to be had, tissue paper (toilet paper is excellent and if it has not been handled, is fairly aseptic and absorbent and makes good packing or dressing for a fresh wound). Wrap about the packing a bandage snugly but not too tightly applied.

If the injured person vomits he must be required or permitted to lie down, as it is an indication of "shock," and all his strength must be conserved.

As already stated in regard to fainting, the best preventive is to get the head lower than the body, as in the accompanying cuts. If he be unconscious he will need careful watching to see that he does not choke in attempting to vomit.

DRESSING OF WOUNDS

To Avoid Infection

In speaking of the dressing of wounds let it be understood that we mean *open* wounds, those in which the skin has been broken. For wounds not open the treatment is much simpler. These will be mentioned under the head of Sprains, Bruises, etc.

The one great fact of mighty importance in reference to any *open* wound is the fact that infection of some kind may have gotten into it, or that you may infect it in your attempts to apply the dressing. Only an infected wound is dangerous, but an infected wound *is* dangerous no matter how small the break in

the skin. We all know of deaths from a "rusty nail in the foot," or the prick of a needle, or from simply paring a corn until it bled. There is only one explanation for such a calamity, namely *careless infection.*

Danger in Even a Little Cut

When we speak of a wound or injury it is not to be supposed that we mean only the *severe* injuries. We mean every little cut and bruise, and every scratch which is deep enough to let the blood flow. See how a vaccination,—which when properly done is not deep enough to make the blood run, but only just through the epidermis or outer layer of the skin, and deep enough to let the serum exude—see how even that can infect the whole system. Or, note how erysipelas can get in through even the slightest break in the skin—and yet may prove fatal. The lesson so frequently and so forcibly, even fatally taught is to *neglect no wound,* however slight.

To Treat Slight Wounds

It is true that nothing serious may come of a slight wound. But the fact that so much *may* result from it, and that it is so easy at the right time to prevent such results, besides the very frequent saving of time, trouble and pain or inconvenience, makes it an exceedingly profitable investment of time to stop long enough to dress a hurt, no matter how slight, and it takes no longer to do this rightly than it does to bungle it.

If then the wound is a slight one and not at all dangerous, unless it becomes so later by reason of infection getting into it, if it is not severe enough to "send for a doctor," you are safe in dressing it if you are

wise enough to do it rightly. Don't put on any fool applications like "salt pork." As well use the salt without the pork, for the salt is the only part that does any good and the pork may do immense harm.

Cuts

If it is a clean cut, and no dirt or filth was on the cutting object, simply bring the edges of the cut tightly together and do it up in its own blood, with a gauze or other compress bound snugly on. No antiseptic wash is necessary.

Ragged Wounds

If it is a ragged or lacerated wound, first see that it is clean of any foreign material, then bring the edges as well together as can be done, pack it with gauze or absorbent cotton and apply the bandage. If there is much bruise, so that it is liable to be pretty sore, the soreness can be largely prevented by pouring on and into the wound pure turpentine.

TURPENTINE AS A DRESSING FOR WOUNDS

It is not generally known that turpentine is one of the most powerful and reliable antiseptics that we have. It is, and for that reason is a most valuable household remedy. It will not smart or sting to amount to anything if you allow a minute or two for the volatile element which is the irritating part, to evaporate before you apply the dressings.

When a nail or splinter has been run into the foot, or a splinter under the finger nail, there is nothing that will so effectually remove the exquisite pain and soreness as a plentiful dose of turpentine. Besides, being a powerful antiseptic, it is a safe application. I

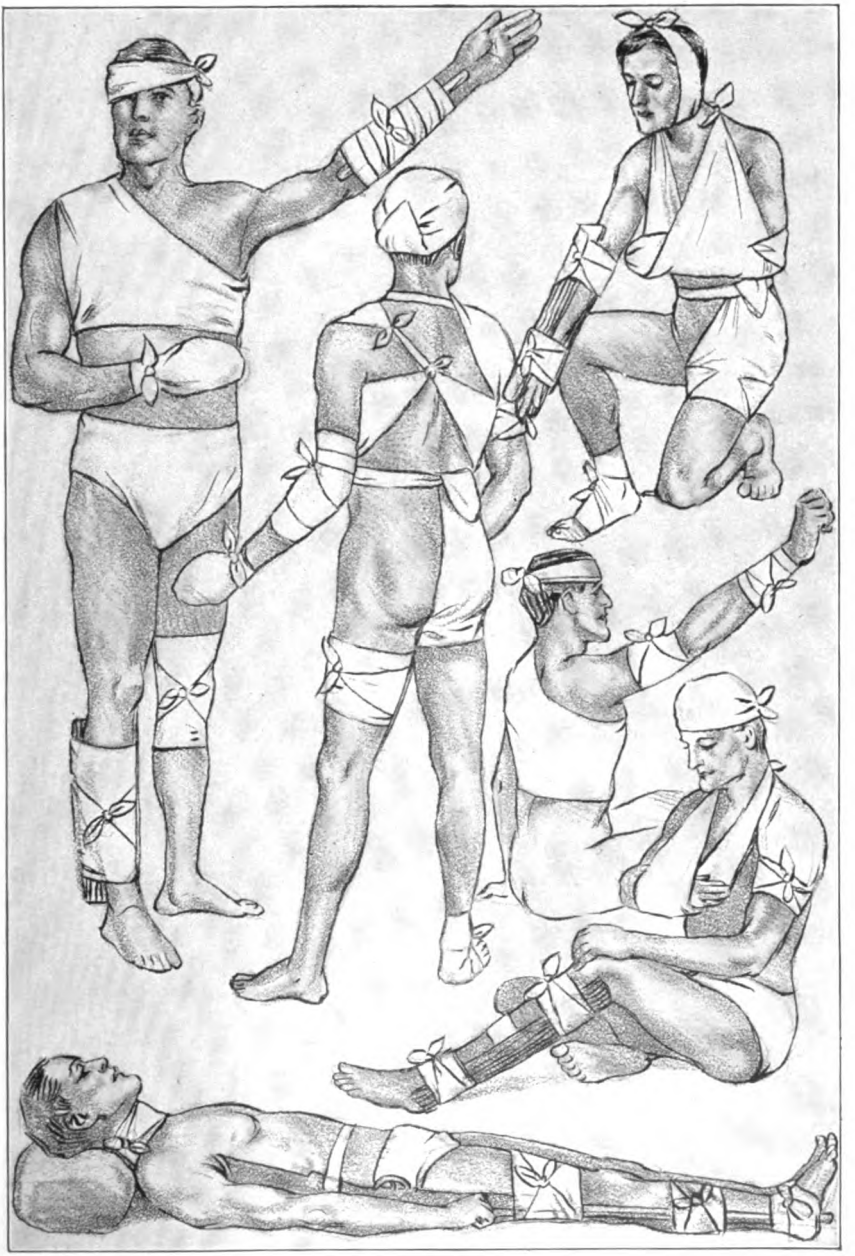
fully believe that it will invariably prevent "lockjaw" or tetanus.

First Aid in Severe Wounds

Here also, when the wound is so serious that a physician must be called, a great saving of suffering and life is often possible if some one present knows just what to do and how to do it. I want to make these directions so plain that anyone can dress a wound just as the surgeon would do the first dressing if he were present. Indeed, even in these severer injuries, the first dressing is of the greatest importance because if rightly done it is found often to be the only dressing needed. In all armies the men are now taught to do it themselves, even on the firing line. They are provided with "First aid packets," which I will describe later. It has become customary to let this first dressing alone after the soldier has arrived at the hospital, unless the pain and suppuration (pus), show that the wound has been or has become infected. Usually after a week or ten days the dressings can be carefully removed under antiseptic or aseptic precautions, when the wound is found to be pretty well healed.

THINGS THAT ARE POISONOUS TO A FRESH WOUND

Under the subject of Healing of Wounds we shall see why it is that a fresh wound is so much more likely to be a point of entrance of poison (infection), into the body than is a wound eight or ten days old. That fact serves to emphasize the paramount necessity of keeping a wound free from anything that would infect



The triangular bandage can be used in many ways

it while it is fresh. Clothing, dirt from the skin, water, perspiration, soil or grime of any kind, and unsterilized dressings of any kind, will poison a fresh wound. Vaseline, gauze, absorbent or "medicated" cotton, and tissue paper are usually aseptic (without sepsis, or poisoning), and make good packing for a recent wound.

To Make Hands Surgically Clean

The hands or fingers are also liable to infect a wound, and one of the hardest things the surgeon has to do is to get his hands so surgically clean that they will not carry infection to the wound when he is operating. It is our custom to roll up the sleeves and scrub the hands and arms first with soap and hot water and brush for several minutes, then wash them in some strong disinfectant solution, then perhaps in seventy per cent. alcohol, after which we still bathe them in a one to 5,000 bichloride solution. Even then we are not entirely sure that our hands are made aseptic, but usually wear sterilized rubber gloves when doing a major operation.

These facts are mentioned to emphasize the importance of not touching a wound with the fingers. The dust of the air would soon infect a wound, but as the wound is not often left exposed to the air for any length of time this danger is not worth considering.

Before the Surgeon Arrives

When it becomes necessary to touch any part of the wound it is better to wrap strips of sterilized gauze about the fingers, which makes a fairly good temporary protection against getting it infected.

When dust and dirt has been carried into it, do not

vigorously mop it out, but flush or wash it out by letting the antiseptic solution run into and out of it. But the best plan, when a surgeon has been called, is to temporarily bind up the wound dirt and all, and wait for him to do the cleansing, provided he can be present in a short time.

A piece of gauze or cotton moistened with turpentine or benzine serves well for wiping the worst of the dirt from a wound.

Be sure and do not handle those parts of the dressings which are to be introduced into a fresh wound. You cannot in these emergencies get your fingers so clean that they will not infect. Take up the dressings to be used for packing with forceps or other instruments which have been boiled for at least fifteen minutes to sterilize them. The scissors make good forceps for this purpose and something of this kind should always be used.

HEALING OF WOUNDS

"First Intention" "Aseptic Wounds"

There are two very different and distinct ways in which wounds may heal. If it is kept clean—surgically clean—it will heal in a few days without the formation and discharge of any *pus* ("matter"). This is the ideal way, and is what modern surgeons always strive for. We say that such a wound is "aseptic," that is, that it is free from germs. Such a wound is never dangerous, for when the injured person has survived the shock of the injury he will always get well unless the wound becomes infected and gets pus

in it. When no pus appears, but the wound goes right on to heal, we say it heals "by first intention."

Healing by "Second Intention"

These are granulating wounds. Sometimes the edges of a wound are so ragged that they cannot be brought together closely enough to stick together and heal in the way above described, or some kind of infection may get in and prevent such healing. Then the process must be much slower. The wound will discharge pus; there will be a new growth of flesh or "tissue" formed; the system immediately goes to work to repair the damage and fill up the place; new cells of a kind called "granulation tissue" are proliferated in immense numbers; and these cells, produced as they are by the billions, build up a new wall about the old injury so that infection can no longer get in. This process is well started within five or six days, after which there is little danger of any microbes gaining entrance to the body through this wound. This is what was referred to in the first clause of the preceding paragraph. All that is necessary for such a wound is to keep it supplied with new and absorbent dressings, so that the discharges shall be absorbed as fast as they form. "Healing salves" and ointments are entirely unnecessary. Keep the wound clean and nature will do the rest.

Proud Flesh

This is mentioned elsewhere as being a mere "bugaboo." It is of no importance whatever. It is merely an exuberant growth of the granulation just described. Bind the gauze dressings on with a little pressure, or sweep a stick of lunar caustic (nitrate of

silver), over such granulations and they will promptly get down to the desired size.

Pus in a Healing Wound

When pus occurs in a wound of any sort, or from any cause, it must be let out. The wound will never heal until it is evacuated. It should always be opened up freely, the pus let out, and the peroxide of hydrogen poured in, either full strength or diluted with two or three parts water. If the peroxide of hydrogen cannot be had, any other disinfectant which is not poisonous will do. Then pack the wound freshly with iodoform gauze or plain sterilized gauze, and let it heal up from the bottom. Renew such packing every day, always cleansing the wound first with the antiseptic wash. The packing with gauze prevents any "pockets" of pus forming in the bottom of the wound, and is a very necessary precaution.

The presence of pus in a wound is generally shown by pain, and by appearance of inflammation, redness, swelling, and the like. It is always best to remove the dressings in case these occur, and look for signs of pus. A soft or "boggy" feeling in any spot indicates that pus is likely to be present.

POISONED WOUNDS

The bite of a dog or the bite of a reptile usually causes much more alarm than it need to. Very few dogs have hydrophobia, and very few snakes are venomous. Still, one always prefers to be on the safe side. A very simple procedure would invariably insure safety against either or any bite. Pour turpen-

tine immediately and freely on the bite (but do not get it into the eye or the bowel). If this is done there will be no need of cauterizing the wound, or of "sucking out the poison." The turpentine will quickly destroy any such poison. Ammonia and tincture of myrrh are also both good remedies for bites or stings. But all such poisons are of such extremely rare occurrence that they pale into insignificance when compared with germ infections of the commoner kind.

FOURTH-OF-JULY WOUNDS

No one familiar with them will deny the importance of Fourth-of-July wounds. They are too serious and too frequent. They belong in a class by themselves. They should all be grouped together under the name of *easily preventable crimes.*

The Ladies' Home Journal published statistics of the casualties from this cause in the United States for the year 1909. They are so full of horrible meaning that I quote them.

171 children lost one or more fingers.
41 children lost a leg, an arm, or a hand.
86 children lost one eye.
16 children lost both eyes.
215 boys and girls were killed.
The total of all casualties for the Fourth of July, 1909, was *5,307.*

In striking contrast to these figures are the reports from those cities and towns in which fire-works were prohibited by ordinance. Washington, D. C., which

had, in 1908 when fire-works had been allowed, admitted 104 children to its hospitals for wounds received on that day, had not even one single case of the kind in 1909, when fire-works were strictly prohibited.

Prohibit Dangerous Fire-works

The time will soon come when all such reckless follies will be prohibited in every city, and Young America will find some other and less self-destructive way to give vent to his enthusiasm. But since that time has not yet come, and since there are ways to treat such wounds in a manner to prevent so many fatal endings, it is well to speak of it.

Every one knows that the chief danger is from lock-jaw following this class of injuries. Lock-jaw would never occur if the wound were properly cleaned out. It is caused by a certain germ, the *bacillus of tetanus,* which lives and grows and thrives in *garden soil,* or in the ordinary dooryard.

Wounds Must Be Cleansed

The grimy hands of the little celebrator are covered with these germs, and the clothing is likewise full of them. Shreds and specks of these are carried into the wounds, and even buried there by the force of the powder, so that effective cleansing of a wound of this sort means a great deal more rubbing and scrubbing than it usually gets.

In these wounds all the things said a few moments ago about not disturbing or vigorously cleaning a wound are exactly reversed. Everything depends on this cleansing. Even at the risk of increasing the hemorrhage and otherwise injuring the tissues the

wound must be scrubbed out with brush and antiseptic solutions, while all shreds of clothing and specks of powder are to be carefully picked out. Then to completely disinfect the wound turpentine, again, is the surest remedy. It is safe to say that if it be freely used there will be no danger of lock-jaw. After it has run out and any remaining drops evaporated or become absorbed, the wound should be packed with iodoform gauze, or gauze saturated with balsam of Peru, and bandages applied. Such a wound should then be dressed and re-packed daily until completely healed.

BLEEDING

Capillary

Hemorrhage from the very smallest of any of the blood-vessels is distinguished by the blood slowly oozing from the cut or torn surfaces. Ordinarily it is not dangerous, and can readily be controlled by putting on pressure with a gauze pad, which is bound firmly on. If this does not check the bleeding, elevate the limb or part above the level of the rest of the body. Require the patient to lie down.

Venous Hemorrhage

In bleeding from the veins the blood is always of a very dark red or purple color, but it wells up freely into the wound if from large veins. It is almost always very easily controlled by pressure. This pressure, in the case of venous hemorrhage, however, should be applied to that side of the wound furthest away from the body, as in the veins blood is returning to the center, instead of passing out from the heart.

Make a pad of gauze or some firm material and bind it on and into the wound and the bleeding will stop.

If the wound should be near the shoulder, the armpit, or at the root of the neck, a serious and rapidly fatal accident may possibly occur. I refer to the entrance of air into the veins. It can only occur when a large vein is wounded, or a small branch of one of the large veins. The air is sucked into the heart with the returning blood in the vein, and causes death instantly. To avoid this danger keep a pad firmly on a wounded vein in this locality, and do not permit the arm to be lifted. Bind the arm to the side.

Arterial Hemorrhage

You can always tell arterial bleeding by the bright red color of the blood when it first comes out. Blood from the veins also *turns* to a brighter red when it meets the air and becomes partially oxidized, so that it may then look like arterial blood.

Arterial bleeding from even a small artery is sure to come in spurts or jets, or in waves, due to the pumping action of the heart. Bleeding from a *small* artery usually stops itself in a few seconds, owing to the inner coats of the vessel turning in and contracting and thus closing up the lumen or caliber of the vessel. It helps some to elevate the part or limb, though not as much as in venous or in capillary hemorrhage, because there is more force behind the arterial.

Arterial bleeding may be dangerous of course merely on account of the loss of blood to which one is liable. It is best to stop it without introducing

one's fingers into the wound if possible. But if it is necessary in order to stop the bleeding, one is justified and compelled to put his fingers into an open wound and take chances on the infection. To avoid this wrap the fingers hastily in gauze if there is time. If not, catch any bleeding point, pull out the tissues, vessel and all, and tie a thread or other string around the whole mass.

Prompt Action Saved a Life

I was once called to a lumber mill where a young man had been injured by being hurled upon the circular saw in rapid motion. His arm was mangled, the bone shattered, and the main artery (the axillary), was cut in two. A bystander, a quick-witted lad, had grasped and held the bleeding point until some one could bring a thread from the shack and tie about the throbbing stump of the artery. His prompt action saved his companion's life. When I arrived, nearly three hours later, I found the end of the throbbing artery protruding like a finger. I stripped it back, put on a new ligature, amputated the arm at the shoulder, and the young man made an excellent recovery. In this case no infection of any kind was introduced into the wound, at least none that I was not able to clean out.

But it is best not to touch the wound if it can possibly be avoided. Besides, it is sometimes not so easy to see the bleeding point. Pressure along the course of the artery supplying the part is a better way, and for the sake of aiding some one at some time to do this I call attention to illustrations elsewhere.

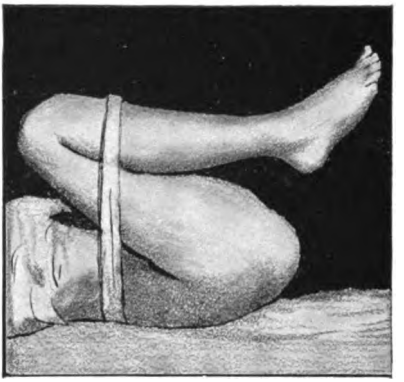
BLEEDING FROM SPECIAL PARTS

In the bleeding from any artery sometimes it is possible the flow may be stopped by pressing into the wound, at the exact bleeding point, a pad of gauze. Then time can be taken to tie the limb above the wound, or between it and the heart. In doing this, if you can locate the exact position of the artery in any one place, put a pad on that spot then tie loosely a twisted handkerchief or triangular bandage over the pad, after which, with a stick to serve as a tourniquet, take enough turns to tighten the bandage just enough to stop the bleeding. Elevate the limb or part, then see that the tourniquet is not tight enough to shut off the circulation altogether. When the limb is severely bruised, get a safe distance away from the bruise with the pad and the compression. If in these manipulations it becomes necessary to touch the wound with the thumb and finger, wrap them in several layers of gauze first.

Bleeding from the Scalp

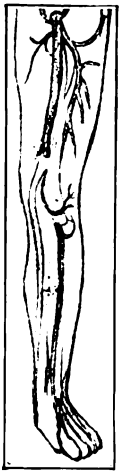
It may sometimes be necessary to remove clots in order to locate the exact source of the hemorrhage. When you find the spot where the blood is coming from, press down upon it with the fingers covered with gauze strips. Having the hard skull to press against, you will be able to check the bleeding in this way, though the dense skin of the scalp tends to keep the artery from contracting its walls. Having now learned the source of the bleeding, make a firm pad of gauze and bind it firmly upon the skull.

Stick under knee and extreme flexion



Extreme flexion to stop bleeding from thigh

Pressure on an Artery



Improvising a tourniquet

Elevation and Pressure

TO ARREST BLEEDING

Do not try to use iron styptics in the wound, as has sometimes been recommended, for it simply makes a black, dirty, useless clot.

Bleeding from the Temple

Compress the artery by pressing with the thumb just in front of the ear. This will also stop bleeding from the nose high up in the nasal cavity. When you have checked the hemorrhage make it permanent by binding on a gauze pad.

Bleeding from the Face

About the middle of the jaw, on either side of the face, you can feel depression or notch. Hold the thumb lightly over this for a moment and you will detect pulsation. This is the branch of the artery which supplies the face. When there is bleeding from anywhere in the lower part of the face, or from the lower part of the nasal cavity as well, pressure of the thumb for a few minutes on this artery at the point of pulsation will stop the bleeding. A gauze or other pad may then be bound on tightly if the bleeding returns.

Bleeding from the Neck

Cuts, stabs, or other wounds of the neck will require quick action. Disregard all dangers of septic infection, and place the thumb on the bleeding point. To hold it more firmly still, grasp the back of the neck with the fingers of the same hand, and push the blood-vessels back against the spine, and not against the wind-pipe, holding them there until the surgeon or some other assistance arrives. It may not be safe to even release the pressure to put a pad on.

Bleeding from the Lungs

The blood will be rather light-colored, and will be *coughed up* instead of being vomited. Lay the patient

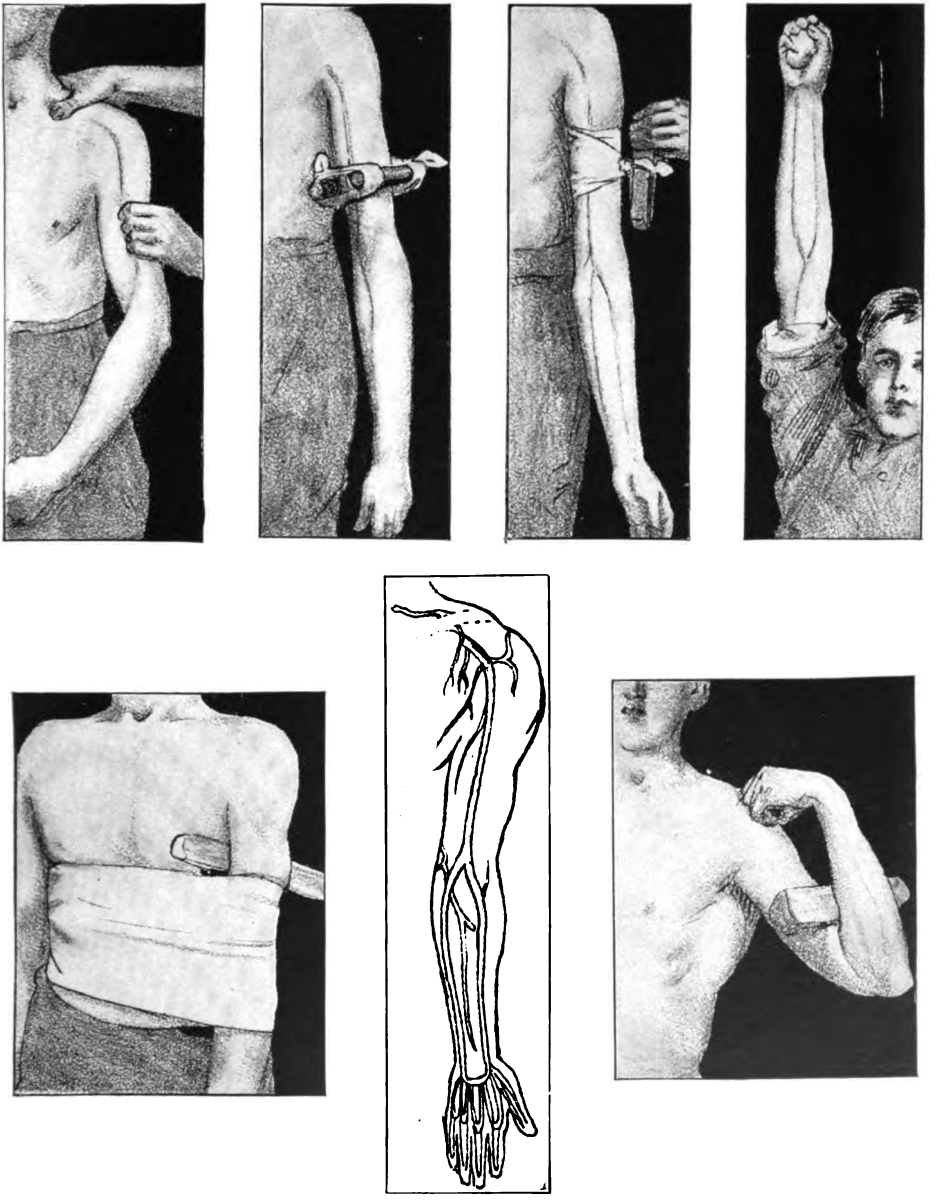
down, with the head slightly raised, maintain quiet as much as possible, and apply cold wet cloths or ice to the chest and back of the neck. A very small dose of morphine or laudanum will help. Ergot is sometimes used in small doses. The best of all if it can be had is adnephrin or adrenalin, ten-drop doses of the commercial preparation (1 to 1,000) of either being given every half hour until the bleeding stops. Send for a physician.

Bleeding from the Stomach

In this case the blood will be dark-colored, on account of the action upon it of the gastric juice, and will be *vomited up* instead of being coughed up. If the hemorrhage into the stomach has been slow, the vomit will resemble coffee grounds. If rapid it is still likely to be dark-colored unless very rapid, and will be in larger clots. Have the patient swallow bits of ice so small that they can be swallowed right into the stomach without being held in the mouth even for an instant, the object being to get the ice to the bleeding points. Adrenalin or adnephrin as above, chloretone in five to nineteen grain doses, dissolved in a little whiskey and water or dilute alcohol, are the surest remedies for checking bleeding from the stomach. Call a physician.

Bleeding from the Arms or Legs

Bleeding from the arms or legs may always be checked by the devices shown in the cuts or by direct pressure into the wound. Nature does much, as already described, to check bleeding in any part. Do as little as you can, and never meddle with a wound after the bleeding has stopped. Apply a bandage



ARTERIES OF THE ARM AND A FEW OF THE WAYS TO COMPRESS THEM

temporarily if a surgeon is to take charge of the injury, if not have the dressings clean and apply permanent bandages, which are to be removed only after three or four days for the purpose of examining the wound, and re-applied if there is not too much pain, fever and swelling, in which case the inner dressings must also be removed and the wound disinfected and redressed.

Bleeding from the gums is likely to be troublesome in advanced stages of cirrhosis of the liver.

Bleeding from the Gums

As a good cleansing and slightly astringent mouth wash, use one teaspoonful of cider vinegar to the pint of water. To check the hemorrhage apply to the gums constantly. Pledgets of absorbent cotton or soft cloth soaked in a mixture of one part adrenalin chloride solution (1 to 1,000) and four parts water.

BANDAGING

There is no secret knack about the way to correctly apply a bandage. A very few hints will suffice, but practice in addition is necessary, and it would be one of the very best accomplishments for every one to acquire. Children in the homes, and possibly in the schools, should be taught the principles and art of bandaging.

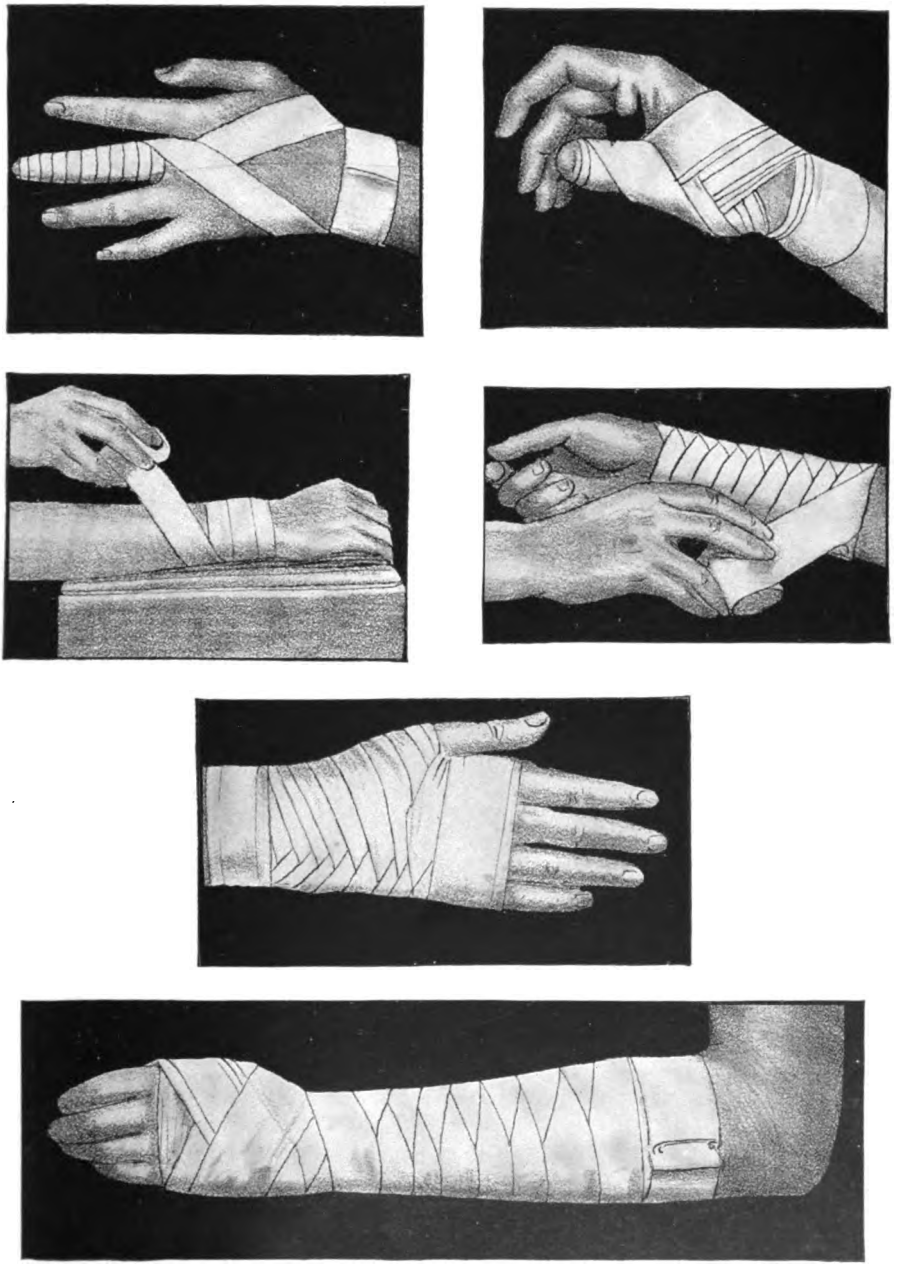
You cannot successfully apply a bandage until it is rolled up into a regular bandage roll. So necessary is this that if we ever take off a bandage and use it again we roll it before using. Roll it with the hands as shown elsewhere. We call this a "roller bandage."

To Apply a Roller Bandage to the Arm

Always begin at the fingers or toes, for if you do not, you may shut off the circulation by preventing blood from returning through the veins. The rule is to wrap from within outward, that is, for the patient's right limb, you grasp the roller bandage in the left hand, and for his left limb, you take the bandage in your right hand. Place your other thumb over the end of the bandage to keep it from slipping until you shall have fastened it by the first round. Bring it over from within outwards, and now your only rule (but a very important one), is to "follow your bandage." That is, wrap it about the limb in such a way that it never wrinkles, and one side or edge of it is never looser than the other edge. This is the hardest part. It requires a good deal of practice. But it is worth it. If the limb were everywhere the same size it would be easy. But to accommodate the bandaging to the different sizes of the limb at different places we have a way of "reversing" or flipping the bandage over, so as to make it incline the other way, and still keep right on wrapping. When finished the bandage must present no loose edges or wrinkles, and it must fit everywhere the same, just as the skin does.

To Apply to a Finger or Toe

The first step always being to secure a firm hold for the bandage, one that will not slip, in applying a bandage to finger or toe it is necessary to take one or two turns about the wrist or foot first, then wind down to the tip of the finger or toe and wrap from there up firmly, ending where you began. This is well shown elsewhere.



A Bandage, to be of service, should be neatly and snugly applied

To the wrist and forearm begin at the hand.

To Apply to the Head or Face

The roller bandage will apply to any part of the head or face, the manner of applying being changed or adapted to suit the case. Elsewhere are shown samples of bandaging, one being applied to the chin so firmly as to form a sort of splint to the under jaw.

GENERAL HINTS ON USE OF THE ROLLER BANDAGE

The roller bandage may be made of gauze or of unbleached muslin (factory). Bleached muslin is firm but does not pin as easily. When firmness is required, as in fracture, sprain, dislocation or when bandaging to support varicose veins, the muslin is better than gauze. Bandages ready rolled can be purchased at any drug store, but a very good way is to buy at the dry-goods store five or six yards of factory and tear it into strips of assorted widths, then roll these firmly into bandages.

In bandaging a new fracture or sprain allow a very little for swelling, but remember also that you need a little pressure.

Position of the bandaged part is a matter of comfort, that generally being best which is most comfortable.

Around an Open Wound

An open wound, unless the pain and swelling indicate the presence of pus, is best left for several days without a second dressing. If the patient has fever that is also a sure sign of pus, and means that the wound must be inspected and if pus be present, the dressings must be removed, the pus let out, the wound

disinfected and dressed again. Then it will require daily dressing.

If in doubt or the outside bandage gets soiled, remove that and carefully inspect the wound without touching it. If you are satisfied that no pus has accumulated, do not remove the inner dressings, but apply fresh bandages and leave it to heal. Do not let curiosity lead too far.

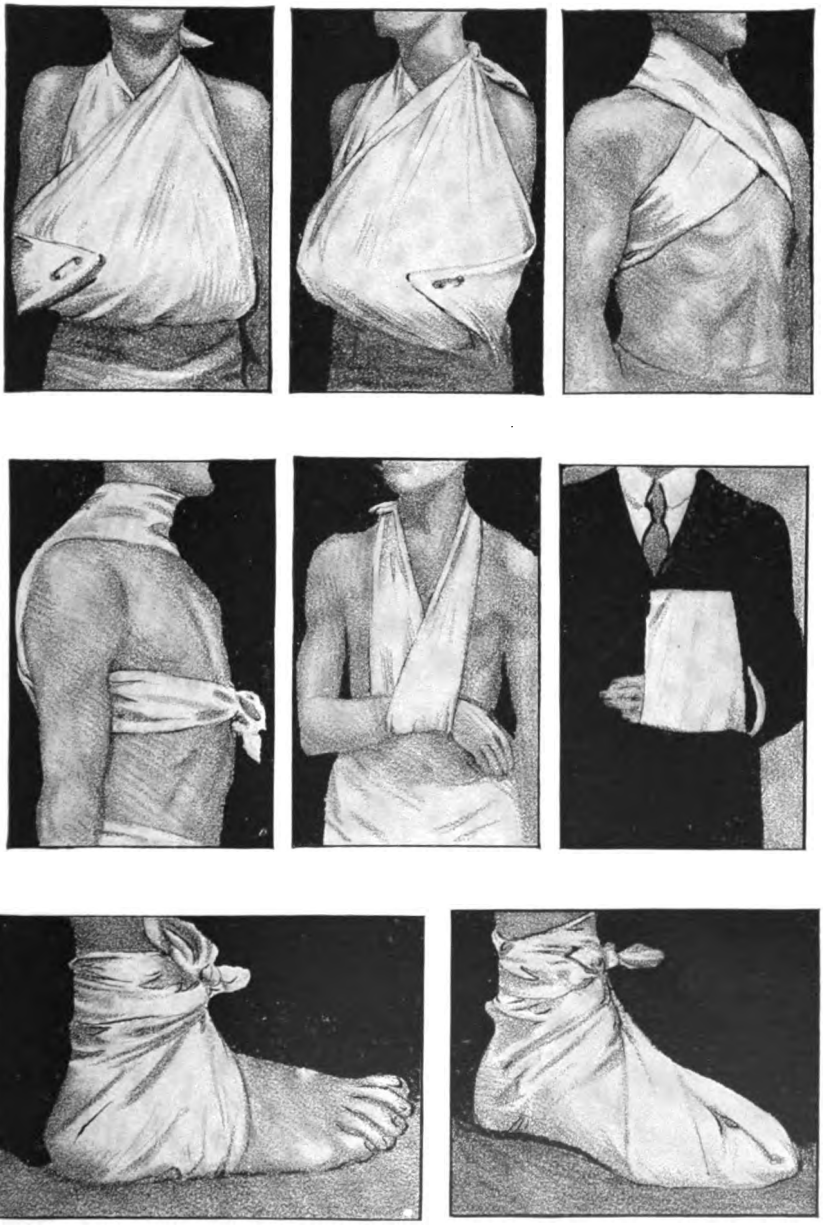
Have Bandage of Right Width

Do not have your bandage too wide. This is a common fault with beginners. It spoils the effort, for it is much more difficult to apply a bandage smoothly if it is too wide. The following sizes are most frequently used: For the hands, fingers and toes—one inch wide, one to two yards in length. Bandages for the head, arms and legs of children—one and one-half to two inches wide, one to two yards in length. Bandages for the arms, legs and extremities of adults—two to two and one-half inches wide, five to seven yards in length. Bandages for the thigh, groin and trunk, three to four inches wide, and ten yards in length.

The Triangular Bandage

The triangular or Esmarch bandage is made by taking a piece of cloth one yard square and cutting it through diagonally from one corner to the opposite corner. Esmarch was a French surgeon who devised this bandage for use in the French Army, and it certainly is of almost universal adaptation. It illustrates also what uses a very large handkerchief can be put to in emergency. See cut elsewhere.

To make a narrow bandage of it, draw the point down to the lower border and then fold into two folds.



The triangular bandage makes any kind of a sling, or a useful bandage for any part

To make a broad bandage, draw the point down to the lower border and fold into three or four.

This bandage is always fastened with either a pin or a reef knot, as shown elsewhere.

To the chest, thigh, hand and head the triangular bandage may be applied as shown elsewhere.

As a quick and ready sling for the arm, bandage for the neck, and as a very convenient bandage for the heel and foot it may be applied as shown on another page.

Many other uses of the triangular bandage will appear to the user. These ways are suggested to show the great variety of uses to which it can be put.

Different modes of application are pictured on each bandage.

The First-Aid Packet

The same eminent surgeon who devised the triangular bandage seems to be the one who also devised the first-aid packet. It is now in general use, not only in every army but many if not all manufacturers of surgical supplies make them, and they are to be found in many factories, workshops, etc., and are a part of the equipment of almost every engineering and surveying expedition. Many automobiles are also being supplied with suitable first-aid outfits. In Massachusetts a State law requires all factories to establish and maintain an equipment for rendering first-aid to the injured. For a long time all that we heard of such first aid was for soldiers of the army and navy.

These first-aid packets are even more appropriate for household use, for a greater number and variety

of injuries occur in the household and on the farm or ranch than occur where men only are concerned, and while there are *rags* about the house, yet these rags are not suitable dressings, and no wound should be dressed with them. Each packet contains a full supply of appliances for the dressing of almost any wound, yet they are small and cost a mere trifle. Every farm house, at least, should be supplied with them.

What Each Packet Contains

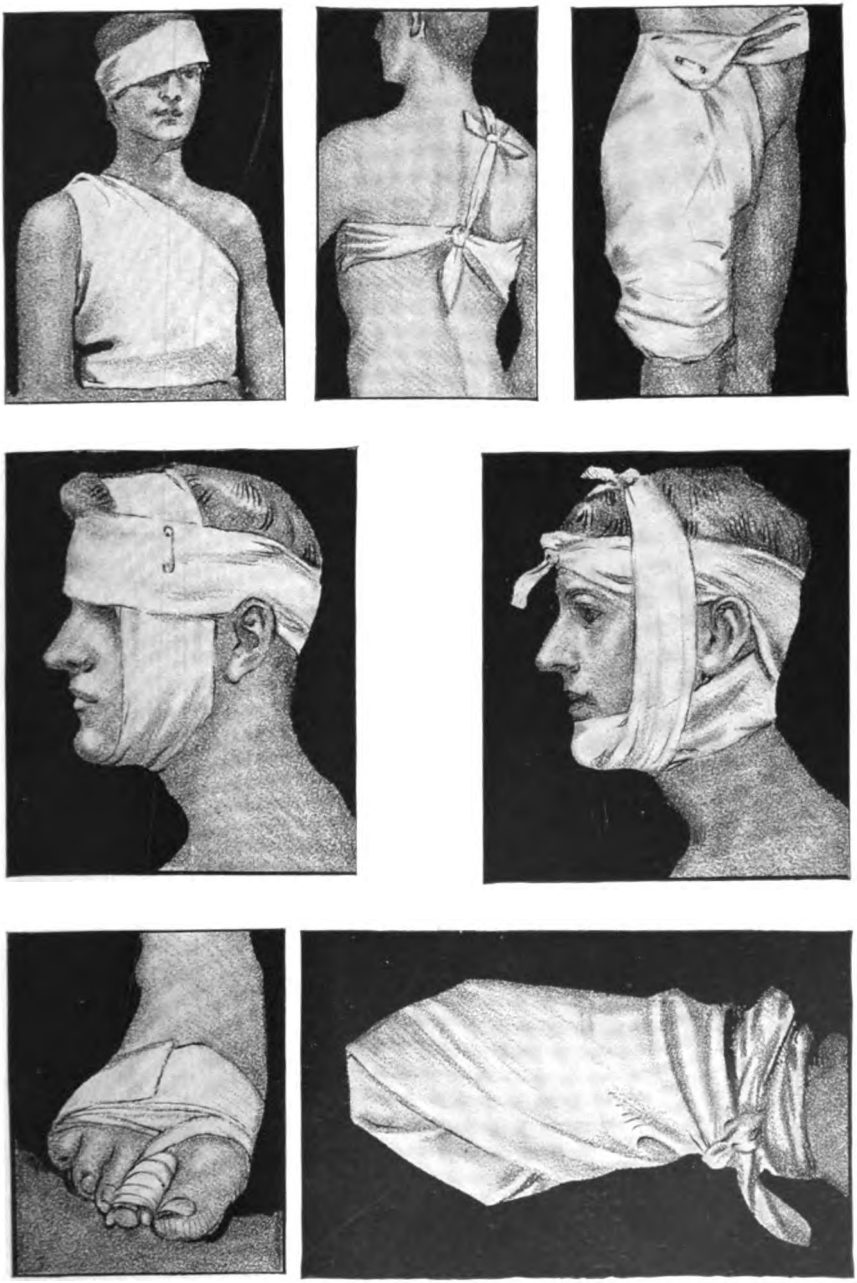
Besides the triangular bandage each packet contains: Two compresses of antiseptic gauze wrapped in oiled paper; and one antiseptic bandage of cambric with safety pin. The directions which are plainly printed on the outside of each package are as follows: "Place one of the compresses on the wound, removing the oiled paper. In cases of large wounds, open the compress and cover the whole wound. Apply the antiseptic bandage over the compress. Then use the triangular bandage as shown by illustrations on the same."

All the contents of the packet are sterilized, and the packet is then sealed and stitched up in a complete covering of oiled muslin, so that its sterile condition is preserved with any amount of handling that may be given to it.

OTHER SURGICAL DRESSINGS

Absorbent Cotton

Absorbent cotton is commonly known in many homes as "medicated cotton." No household should be without it. It is not medicated, but is merely ster-



SOME METHODS OF APPLYING BANDAGES

ilized, which is all that is needed. Any wound will quickly heal if only it is kept free from microbes, and that is just what the cotton will do. It also absorbs any discharges, and that keeps the surface of the wound clean. You can stuff it into any wound and leave it there till it becomes nearly saturated. Then always burn it up immediately. After the sealed package in which it comes is broken it should be kept in a jar of which the cap may be kept air and dust tight, like the lid of a common self-sealing fruit jar, which makes a very good container for it. Take out what is needed each time without handling the rest of it, and thus keep it aseptic.

Gauze

This most excellent and not very expensive article is able to take the place of cotton or bandages when required. It is sold in packages either medicated or merely sterilized, and it makes little difference which is used, but one or the other should be kept on hand in every house. Like absorbent cotton, it can be stuffed into any wound, and for a fresh wound no other dressing is necessary. For keeping for household use it is better to get it in glass containers, which protect it from dust and unclean things. It must never be touched with the hands, but take out what is needed only by seizing that portion with the tweezers or the fingers, after they are thoroughly cleansed, and cut off with the scissors the amount desired, using then the instrument to replace that which has been put away for future use.

Splints

All that need be said on this subject is that splints

for even temporary use, should be firm, light, slightly yielding only, and well-padded. When a person with a broken bone is to be moved, it is well to apply temporary splints for the sake of preventing injuries to nerves and vessels by splinters and the sharp ends of broken bones. The rubber-adhesive plaster has been found to answer well for this purpose for many kinds of fractures.

The principle of a splint is plainly and solely *support.* Unless a bone is fractured or a joint dislocated no such support is needed. When fracture or dislocation has taken place, anything that will provide the support will do for a splint.

The Application of Splints

The chest wall will answer for a splint to bind the arm against, one leg will do for a splint for the other, a generous bowl of bread and milk will do for an *inside splint* for broken ribs, etc. Anything from an umbrella, a fence rail, or from an iron poker to a bundle of twisted grass, will answer if nothing better offers. Of course hard substances must be padded with something, and weak ones must be stiffened or doubled.

It is always a matter of importance that the splint be extended so as to keep the joints quiet and the muscles at rest both above and below the injury. If the bone is completely broken so that the limb hangs loose, two splints, one applied on either side, are needed. Splints and the manner of applying them will be further shown under the subjects of Fractures and Dislocations.

RUBBER ADHESIVE PLASTER

The rubber adhesive plaster is firmer and stronger than court plaster, and better for general use. It is another item of the surgical outfit necessary for every home, for often the lips or edges of a wound can be held together with it nicely. No one but a surgeon would attempt to sew up a wound, but any one can draw the edges together and hold them with strips of plaster.

The strips must be so applied that they will not cover the wound and keep the discharges from escaping. The rubber adhesive is not spoiled by moisture as court plaster would be. It can be torn into strips of any width as easily as a cloth can.

A roll one inch wide comes wound on a spool and is cheap and convenient. It can be run over a wound so as to completely cover it, provided a thick gauze pad is placed beneath it.

In the absence of splints several thicknesses of adhesive plaster make a very good splint. It is the very best thing to use in case of fractured ribs.

Antiseptics

I have left the most important of these general subjects till the last. Disinfection of wounds, or the use of antiseptics, is a thing that anybody can do, and everybody ought to know how to do it. It would save much pain and suffering, and sometimes life if they did.

Bichloride of Mercury tablets, each containing a little over seven grains of corrosive sublimate and

ammonium chloride, dissolved in one quart of water makes a solution of the strength of *one to 2,000.* This is strong enough for any use, and for most purposes at home should be diluted with about twice its amount of water (to make three quarts). Never keep it about the house with other medicines, and never without a red label (the sign of poison). You can get the tablets which make a clear white solution, or those which make a blue solution. Always get the latter, then you will know what it is. Always use it in earthen or glass vessels, never in tin or iron. It corrodes them. It is too strong to be used in the eye. There are also one and one-third tablets which are useful for smaller amounts and smaller dressings. One such small tablet, dissolved in about half a pint of water makes a wash of good strength, and in one pint is sufficiently strong for all fresh wounds.

Other Antiseptic Washes

Another very excellent antiseptic wash is made by dissolving one teaspoonful of *cresol* in two pints of warm water. Any one of such solutions can be bottled and kept, if unused, for future use.

Carbolic acid is a good antiseptic, but is not used now by surgeons, as the other solutions mentioned are better. It is used in the same strength as cresol, but is not so sure.

Hydronaphthol is antiseptic, but is slightly irritant, and makes the skin burn a little. It is used in the same strength as bi-chloride of mercury, and has the advantage of not corroding tin and other metal vessels as the latter does.

Camphenol, an antiseptic manufactured by Johnson & Johnson, and sold by all druggists, has the special advantage of being *non-poisonous,* yet effective, not irritating to the skin, and does not corrode instruments and tin vessels. It is therefore much to be preferred for home use, and can be kept about the house without danger of poisoning some one who might take it by mistake. It is good to use in cleansing fresh wounds, or in disinfecting old ones and making them healthy, and healing them.

The Advantage of Camphenol

BRUISES (CONTUSIONS), UNOPENED WOUNDS (EXCEPT FRACTURES).

I make this general distinction, and speak of this class of injuries on the start, because *the fact that the skin is broken,* if it is, is of the very greatest importance. I have said enough already to show (provided the reader has chanced to read also that portion of the work), that the only way germs have of gaining entrance to the body, except through the lungs in respiration or the intestinal tract with food or drink, is where there is an abrasion or break in the skin. Surgically speaking, the break in the skin is the item of greatest importance. Rarely poison gets in through the hair follicles, which penetrate the skin, but we may say that practically no serious infection occurs that way, unless it be that of boils and of carbuncles.

In accidents, then, the first question is: Is the skin broken?

If *not,* there is ordinarily no objection to touching

the bruised part, and feeling it gently may reveal to us whether or not there are any bones broken.

In Case of Broken Bones

If broken bones are felt, which can be told by the grating feeling as the fragments move on each other, two things are to be done and two kinds of dressings are necessary:

First, a splint must be applied to so *fix* and firmly hold the fragments from moving that they will heal, also to keep any sharp points from sticking into and wounding any nearby nerves or blood-vessels. It is generally very easy to see that these fragments, if there are any, which is rare, are in their proper place, and stay so. Then something must be applied to take the soreness out of the bruised flesh, or to prevent its getting sore. Ice and cold water, kept on constantly are very good to keep swelling down, and often relieves pain. But there is a difference about people using ice. Some declare that it makes the bruise hurt them more. Others say it relieves the pain. We are in the habit of using ice at the very first, unless there are objections to it, when we begin at once with *hot* water, or application of *dry* heat, as hot bottles, etc.

To Relieve Soreness

Sometimes it will be more convenient to apply medical remedies. Best part of all, and the one which has no equal, is *turpentine.* You can use the "spirit" or the "oil" of turpentine, since they are all the same. This good oldfashioned remedy is or ought to be in every household, for there is none safer. It is to be poured on or into the wound freely, and allowed to run out or off, but not covered up until the irritating

ingredients of it, which are irritating, have evaporated. Then a covering dressing may be applied. Especially those painful wounds or bruises about the nails, where the pain is excruciating, will be relieved like magic by turpentine.

To Prevent Swelling

If the injury is one likely to swell, as in a sprain, the best immediate application is the lead-and-opium wash, used hot, if convenient. Saturate thoroughly thick cloths or cotton, and envelop the parts, renewing the wash every four or five hours. This will be of advantage for only the first day or two. After that a more stimulating liniment will be needed. *Rest* of the part is an important help to all such inflammations, especially for the first day or two.

An *evaporating lotion,* of water and spirit, is a good remedy to take out inflammation and swelling. The part is bathed frequently or constantly in the lotion made of about one part spirit, whiskey, brandy or alcohol, and four or five parts water. This makes a fairly good antiseptic wash also for open wounds. You can cleanse the hands with it, or with pure whiskey or alcohol, after first scrubbing them with soap and hot water. Applied to a bruise, or as any external application, we call it an "evaporating lotion."

Spinal Injuries

Spinal injuries occur mostly from sudden jar, contusion or bruising, and from jumping and lighting stiffly on the feet. Lighting in this way from a jump has even been known to cause fracture of the base of the skull, which is always fatal. If the bones of the spinal column are not injured, and they seldom are,

quiet, with cold applied to the spine and head, and with a few three-drop doses of the tincture of belladonna, to send the blood away from the spinal cord and out to the skin, are all the treatment needed.

SPRAINS

Sprains are by far the most frequent of all the injuries to joints. Sprain is produced by a sudden twist or wrenching of the joint in an unusual and unnatural direction. The ankle by a misstep, and the wrist by falling on the hand, are the two joints which suffer this injury oftenest. Sprains are of every grade of severity or insignificance, but when severe they offer a painful and tardy recovery.

Sprains of the Joints

Some knowledge of the nature and character of the joint is necessary to the understanding of a sprain. Every joint is composed of the apposition of two or more bones, and the articular surfaces of these bones are covered with a delicate membrane which is reflected from one to the other so as to form a pouch. Over this pouch is a hard dense white capsule, called the *capsule* of the joint. The pouch is called the "synovial pouch." Muscles and ligaments or tendons which enter into the formation of the joint are attached to this capsule, and sometimes penetrate it, covered by sheaths of the synovial membrane. *Ligaments* are dense white sinewy cords which pass from one bone to the other or to another portion of the capsule. It is these strong ligaments which hold the bones together and maintain the integrity of the joint. Sometimes

in the ankle the bone is also broken into the joint, and when this happens the ankle is apt to be left stiff.

Sprains of the Ankle

A sprain is an injury to a joint, in which there are no fractured bones of importance (sometimes the protuberances to which strong ligaments and muscles are attached are splintered or torn off), but in which there is a more or less *severe wrenching of the ligaments,* and the muscles of any, which enter into the formation of the joint, with often rupture of some of the fibres of those ligaments. That is rather a long definition, but sprains are frequent, and are often the subject of home treatment, and it is therefore essential that everyone should have a good idea of just what a sprain is. Just how much of the fibrous attachments of muscles and ligaments by which they are anchored to the bone as a ferry cable is anchored to each side of the river, are torn loose from the bones it is impossible to say in each case, and the amount is what constitutes the severity of the sprain.

There will often be also some ecchymosis ("black-and-blue," or "blood-shot"), showing that the blood-vessels are injured to some extent, and this again shows the severity of the sprain. Where the ligaments or fibres are torn loose from the bone will be the most acutely tender spot on pressure with the finger. It is hardly necessary for me to add that while sprains are not dangerous, yet they are really sometimes severe, and that we must realize that they need time and aid to get well.

A very *light* sprain may be "walked off," as the

The Treatment

athletes try to do often. The walking increases the determination of blood to the part and in that way really hastens the cure. But a severe sprain cannot be treated in this way, and using the foot makes it worse. Rest is the most important single element in the treatment of a severe sprain. The limb should be elevated to diminish the congestion and swelling. Bandaging in the first stage, while swelling is increasing, will not do, but later on is a valuable aid. Constant cold applications for the first two or three hours will help to keep down the swelling. After that hot applications will be the best. But hot applications from the start often give the most comfort.

The Lead-and-Opium Wash

Among remedial agents there is nothing equal to *lead-and-opium wash,* applied freely, and hot. Keep the cotton, gauze, or cloths in which the joint is swathed well saturated. The action of this remedy is astringent and sedative, and will therefore be useful only the first two days. Even one day will answer if the sprain is slight. Witch hazel is useless, as its astringent properties are slight and do not penetrate beneath the skin. "Pond's extract" is the name under which it is usually sold, and about all it is good for is *to sell.* A wash of *alum* would be much better, cost a tenth as much, and a decoction of *white-oak bark,* or a solution of *tannic acid* would be much better than either alum or witch hazel. Indeed a mixture of tannic acid one part, and glycerine ten parts makes a most excellent application in sprains.

After the first two or three days of a severe sprain,

when the pain and swelling have begun to subside, is the critical time for good treatment. It is here that the usual treatment fails, and the sprain hangs on and troubles one for weeks and months. Then is the time when bandaging does good. The ligaments need supporting, and the bandage, applied firmly but not too tight, gives them this support, and at the same time the pressure helps to take down the swelling. In the ankle the bandage must begin at the toes so as not to shut off the circulation. It must not be too tight at the ankle, but must still give firm support, and it will then be a great source of comfort. Now, too, a good, stimulating liniment, like the tincture of arnica, or "ammonia liniment," either of which can be had at any drug store, are useful.

The Time for Good Treatment

Sprains of the knee are much more rare, but are often severe when they do occur. The symptoms are about the same as in the ankle-sprain. In either, it is sometimes very hard indeed, if not impossible to say whether there is not dislocation in a partial form, or fracture. Indeed there is a condition recognized which is called a "fracture-sprain," that is, where a severe sprain is accompanied by the break or splintering of the bone into the joint. Surgeons often apply a plaster-of-Paris cast at once, and if the sprain or fracture is of the character just described, this is the best treatment, for immobilization of the joint is the thing most necessary.

Sprains of the Knee

The plaster cast prevents the swelling and effusion into the joint, and, in the case of the knee is doubt-

less best. For home treatment, however, there will be few who can apply it. It is not difficult to learn (see, Plaster-of-Paris bandage), and is very easy to apply, and safe. Even with it, crutches will be needed for a few days in a knee-joint sprain.

Sprain of the Back

A sprain of the back is frequent, and differs in grades from the merest wrenching of the muscles producing a sort of lumbago, to that of rupture of some of the many ligaments which surround the vertebral column, and support the body in the erect position. In the milder forms, rest and rubbing the back with a liniment such as that just prescribed, to which for this purpose about half a dram to the ounce of the liniment of the tincture of belladonna should be added, will soon effect the cure. But in the severer forms, such as occur in runaways, or in railroad accidents, there may be some rupture of the ligament fibres, as described for severe sprains elsewhere, and wounding of blood-vessels and nerves. There is likely to be some paralysis following, and especially of the bladder, with retention of urine. In these sprains a plaster cast of the whole trunk will be useful. But this will have to be done by the surgeon.

Sprain of the Wrist

Sprain of the *wrist* is even more frequent than that of the ankle. A light band wrapped snugly about the wrist will often prevent the well-known weakness so sure to follow this injury. The acute tenderness on pressure on certain points of the bones of the carpus, or wrist, will often give the sensation of ruptured fibres, and supporting bandages are just

as necessary for this joint as for the knee or ankle. The same application also as recommended for them will answer well in wrist-joint sprains.

SYNOVITIS

This word, synovitis, signifies an inflammation of those delicate membranes which surround and provide lubrication for the joint. This is the membrane called the "synovial membrane." Forming so important a portion of the joint as it does, it is the chief element in the common inflammation of the joint. (See *Joints, Inflammation of.*)

BROKEN BONES—FRACTURES

Simple Fractures

In the case of what we may term simple fractures only the bone is broken, that is, in which the *skin* is not torn through. There is always more or less injury to the surrounding soft parts, nerves, blood-vessels, etc., but not enough to break clear through the skin.

Simple fractures are very different from those in which the sharp end of a bone has been driven through the skin, or some outside missile or object has torn its way through the skin and then fractured the bone, so that the fracture is opened to the outside world. These are known as compound fractures.

Compound Fractures

A moment's reflection will convince any one that the difficulties are increased a hundred, aye, a thousand fold, by those conditions which constitute the *compound* fracture. All that was said about *open*

wounds applies here, with all the liability of the wound becoming infected, and in this case the results of infection are even worse because a bone will never set and heal if infection is present.

Comminuted Fractures

These are fractures in which the bone is broken into *fragments.* A comminuted fracture may be either simple or compound.

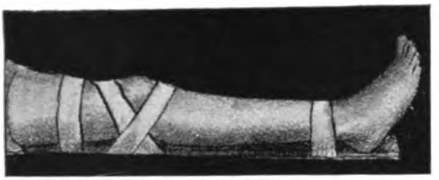
As the care and treatment of fractures depends entirely upon the kind it is, let us study these conditions separately.

SIMPLE FRACTURES

You may inquire, How can we tell whether or not a bone is broken? That is the question of first importance, and yet I must tell you frankly that sometimes we cannot be certain. If the shaft of a long bone is broken, it is generally easy, but fractures occur both from external violence and by muscular action. It seems strange, but it is true that the strength of a muscle and of its attachment to the bone are such that it is perfectly capable of tearing off a splinter of the bone. In that case the displacement may be so slight that we cannot be sure. Again, a bone is sometimes broken into a joint in such a manner that no one can be positive about it.

Sprain May Be Worse than a Fracture

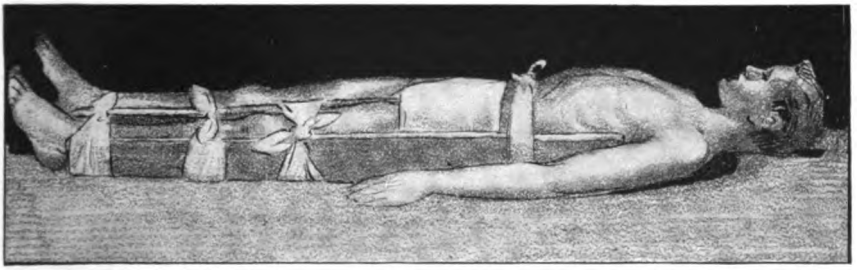
I have said elsewhere that a *sprain* is the rupturing of some of the fibres of a ligament, or the tearing loose of the end of a muscle where it is attached to or "inserted" to the bone. This end of a muscle by which it is "inserted" upon a bone is as dense and



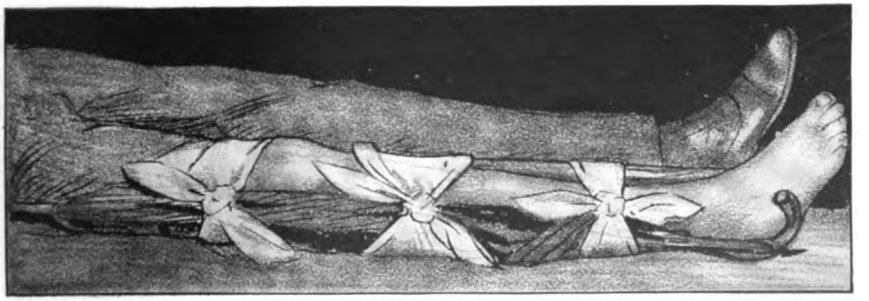
Strapped on with rubber adhesive plaster

Improvised fracture-box

Splint tied on with triangular bandage



Let one splint run clear up to the arm-pit



Use anything you can get for splints

hard and has as little stretch to it as the ligament itself has. A very severe sprain is much like a slight fracture of this kind, for in either case it is probable always that some fibres are torn. Indeed the sprain may be worse than the fracture, both on account of the pain and the long time it takes for the sprain to get well.

One Kind of a Fracture

Keeping in mind then what a sprain is, we can readily understand that some fractures must be very much like the sprain. When the strong tendonous attachment by which any muscle keeps its hold on the bone, or on other muscular and ligamentous bands called *fascia* (pronounced *fashia*),—when this anchorage which is so much like the anchorage of a derrick cable into the ground—is torn loose by sudden violence, it is very apt to take a piece of the bone with it, and that constitutes one kind of a fracture.

When the bone is broken into a *joint,* also, it may be very difficult to make out. It may seem more as though the joint is "out of place." Such a break may be very painful, and may be hard to heal on account of its connection with the movable joint, and is likely to leave a stiffened joint.

A "Green-stick" Fracture

The *partial,* or *incomplete,* or "green-stick" fracture is another kind which must be mentioned. It occurs only in the young, whose bones are more flexible than in old age, and then usually only in the forearm or the collar-bone. One side of the bone breaks while the other half only bends, as shown elsewhere. Sometimes in correcting the deformity, which

is done by bending the bone slightly the other way, the rest of the bone is broken through. It happens in the familiar way in which a green stick will partly bend and partly break. This kind of a fracture may also be difficult to "make out" as we say.

SIGNS OF FRACTURE

"All signs fail" sometimes, and yet we can safely say that we can rely with a fair degree of accuracy upon certain signs of simple fracture. When in doubt it is of course always safest to take the same sort of care as we would if certain that the bone is broken. We can usually rely on some one or more of the following signs:

(1) Mobility. A usually stiff and rigid bone will be found to be in two separate parts, and these fragments will move on each other.

(2) Loss of Control. The injured person will generally be unable to move the limb. But this will not always happen in fracture, and it may happen in case of dislocation. *Complete* loss of the use of the limb can be regarded as a pretty sure sign that a bone has been broken.

(3) Change of Shape of the Limb. Deformity. There will be but few cases in which there is not some difference between the injured limb and the one on the other side. Compare the two. When a bone is broken the action of the muscles generally makes one fragment over-ride the other. This will make the fragments show plainly, and will make the injured

limb shorter than the other. It will not occur in places where there are two bones, as in the forearm and the leg below the knee. This is well shown in the radiograph elsewhere. One bone of the forearm, the *radius,* of this subject had been broken on a railroad, and the bone had failed to unite. A lawsuit followed, and the case came under my observation. The fracture had been a compound one, but the outer or flesh wound had healed. Turning the X-ray on I found the condition as shown, and took the picture of it. The man was unable to turn his wrist one way or the other. The deformity at the time I saw it was very slight.

(4) Shortening. Shortening of the injured limb is an almost constant sign of fracture. The muscles draw the two ends of the bone tightly together when the ends do not over-ride one another. This produces what surgeons call an "impacted fracture." It often occurs in fracture into the hip-joint. In that case the leg may be one or two inches shorter than the uninjured one.

(5) "Crepitus." The grating *feeling* which you get as you take hold of the bone with one hand and move the fragments one upon the other with the other hand is also proof of a fracture. It is plain that in an "impacted fracture" you will not get any such sensation, because the fragments are stuck firmly together. A caution in regard to this sign must be noted. Sometimes when the sheath of a tendon is roughened by inflammation you may get the grating

feeling when no fracture is present. This test must be made gently, so no harm may be done.

(6) Swelling. Swelling can hardly be said to be a distinctive sign, unless it occurs along the shaft of one of the long bones, for it might mean a bruise or a dislocation. Still it serves to direct the attention to the right spot.

(7) Pain. When the pain is extreme and located in one spot, and when it is markedly increased by pressure with the finger, it is an indication that the bone is broken.

You will not find all of these signs present in any one case, but by one or more of them you know that you have a simple fracture to deal with. Then what?

TREATMENT OF SIMPLE FRACTURES

It must be self-evident to any of my readers that the sharp ends or splinters of a broken bone may do great harm by jabbing into blood-vessels or nerves, or otherwise wounding the soft parts. They may even punch their way through the skin, and thus convert a simple fracture into a compound one, making it very much worse. Much of the pain of a broken bone is due to the muscles contracting spasmodically and jabbing the fragments either against each other or into the adjacent soft parts.

The thing to do is therefore to *apply temporary splints* before attempting to move the patient. The bones must be held in place, and any such injury to the soft parts prevented. These splints may be

anything that you can get hold of (see splints), and you will have to bind them on with whatever you can get. The cuts elsewhere will show some of the things that have been used.

It matters little how crude these temporary splints may be if only they hold the fragments in place firmly. Soldiers are taught to use their guns for the purpose.

Common Sense the Best Guide

Permanent splints and dressings require more careful adjustment. The temporary arrangement just described will do only until the injured person can be removed to permanent quarters. Then the limb must be undressed, the temporary splints removed, and new and carefully prepared and well padded supports provided. If no surgeon is still to be had a few simple rules will assist. Common sense is the best guide. The necessary thing to do is to get the bones into their natural shape and position, and hold them there with the proper mechanical devices. Good *mechanical* sense is needed. The limb must be preserved as nearly like the other one as possible.

Before Removing Temporary Splints

Get everything ready before the temporary splints are removed. Be sure that the splints are long enough to pass over both neighboring joints, so as to stop all movement and limit muscular action. Have the splints well padded, especially where they come next to the joints or protruding places of the bones. They should be made of some light but firm material, in order to hold the bone firmly.

A few strips of adhesive plaster brought around the splints and limb will help to keep the splints from slipping. Three boards well padded make a good splint for the leg. One or two straight pieces of thin board answer well for the arm if they are rightly applied; hands and fingers the same.

When Everything is Ready

When the splints and bandages are ready, first see that the bones are in their natural position. The muscular action which causes them to over-ride may have to be overcome by pulling on the limb while the upper part is held firmly by an assistant. This pulling, and at the same time a gentle pressure exerted with the thumb, will get them into place. Then hold them so while you apply the splints, which you bind on snugly with the bandages. The few strips of plaster will help wonderfully to hold them.

SPECIAL FRACTURES

Wrist

A few of what are known as the commoner kinds of fractures will be mentioned, and these will serve to indicate the principles of treatment. Colle's fracture of the wrist is most frequent of all. It is generally caused by falling backward on the hand, which has been put out to catch one's self and save from the fall. On account of the peculiar deformity it is known as the "silver-fork fracture." The only bone broken as a rule is the lower end of the radius. This lower fragment is displaced backward, as shown elsewhere. The hand must be pulled while the thumb presses this fragment down into position. Perfect

position is sometimes hard to get but is very necessary, even if the person must be chloroformed to get it.

A long splint for the front part of the arm, reaching clear to the elbow, is required, while a shorter one is best for the back of the wrist. It must be examined occasionally to see if the correct position is maintained. Healing requires two to three weeks.

Collar Bone

Next to the fracture of the wrist, the most frequent fracture is that of the collar bone. It is generally caused by muscular action, as when the arm is thrown forcibly back in giving a blow with the back of the hand. Sometimes in a fall the collarbone (clavicle), is made to receive the entire shock of the fall, and gives way. The affected shoulder drops. The injured person tries to support the elbow and arm with his free hand, in order to relieve the weight of the limb from the broken bone.

Take hold of both shoulders as you stand behind the injured person, pull gently but firmly backward, and when the shoulders are in normal position and exactly alike bind them so with a "figure of 8" bandage, that is, with a triangular bandage or wide roller, or two handkerchiefs tied together.

The bandage is thrown forward first around one shoulder and back of the neck, then around the other shoulder and back again, and so on. When well done this holds the shoulders in place, and the collar bone is normal. It will heal in about two weeks.

The next most frequent fracture is that of the

Pott's Fracture (Ankle)

ankle. The ankle is twisted and the foot is turned outward. A prominence on the inner side of the main bone or *tibia* is always broken off. Usually also the smaller bone of the leg, the fibula, is broken two or three inches above the joint.

It is generally caused by jumping from a height and lighting squarely on the feet. The peculiarity of this fracture is that there is always some dislocation with it. It is painful and sometimes leaves the ankle stiff.

The treatment is very simple. A fracture box made of three boards nailed or screwed together (preferably hinged), is well padded, to conform to the shape of the limb. When all is ready the limb is straightened by forcible extension sufficient to permit the fragments to assume the normal position.

Such a fracture box is shown elsewhere. As soon as the bones begin to knit in perfect position a plaster-of-Paris dressing can be applied, and the patient can walk about.

Fracture of the Joints

Breaks about the joints are serious. Extreme care is needed to get even fairly good results. The joint must be made immovable and is liable to be stiffened afterwards. The splints must be applied on all sides of the joint.

The injured limb should be kept elevated to a level with or slightly above the body. If swelling or pain is severe the constant application of heated lead-and-opium wash for a day or two will help to relieve both.

Fractured Ribs

This common and painful injury is yet so simple and easy in both diagnosis and treatment that anybody can do it. The surest sign of broken ribs is the pain. This pain is made much worse on coughing or on drawing a deep breath. If now you press with your thumb firmly on a supposedly broken rib, but a short distance away from the spot of the break, the pain will be felt, not where the pressure is made but where the break is. This is the best possible sign. Remember in trying this that the ribs incline upwards at each end instead of being horizontal.

The Treatment

This is simple, but very important. Some support must be provided for the chest wall against the movements of respiration. If not, the movement of the ribs in breathing will prevent healing. This means that a firm bandage must be wrapped about the chest. If adhesive plaster cannot be had use a broad band of any material, and bind it firmly on. If the binder is to be put clear around the body it is necessary for the patient to hold up his arms and draw in his breath moderately, so as to not restrict too much the breathing capacity.

Adhesive Plaster Bands

Two cuts are subjoined showing how to apply these strips when the material is to be had. For a person who is not fat the strips should be about two inches wide, not so wide for a very stout person. About twelve in number is sufficient, and they should each be long enough to reach from about an inch beyond the median line of the chest bone around the injured side to an inch beyond the spine. Before applying

let each be very slightly warmed. The first cut shows how the first strip should be placed, running from above downward and backward. Then begin with the other strips about on a level with the navel as shown, and run them successively from below upward each from the front to the back, the patient standing or sitting with arms above his head. (Woodward).

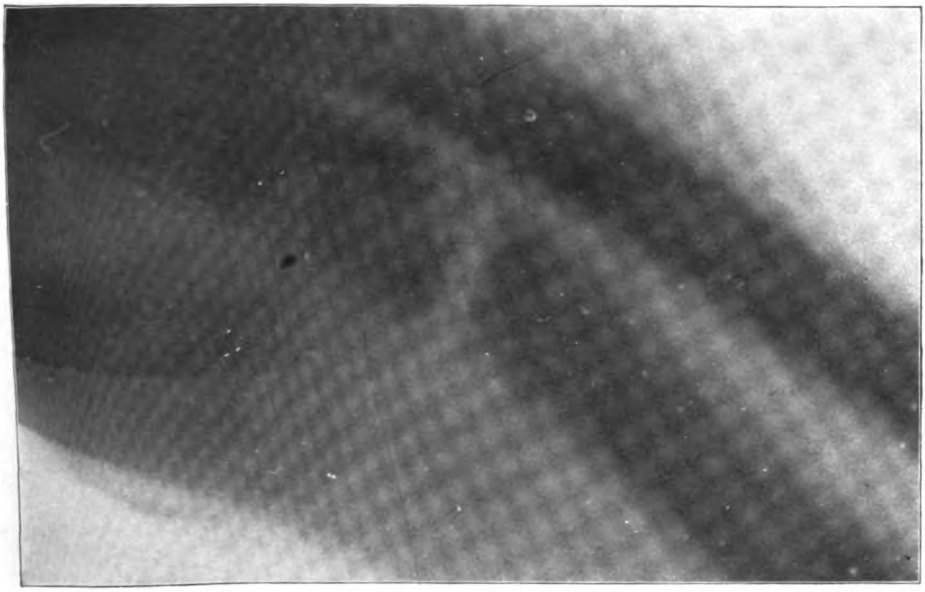
When the edge of the strips reach to the armpit as shown in the second cut, one or two strips may be run from above downward, though this is seldom necessary.

The Ribs Must be Rendered Immobile

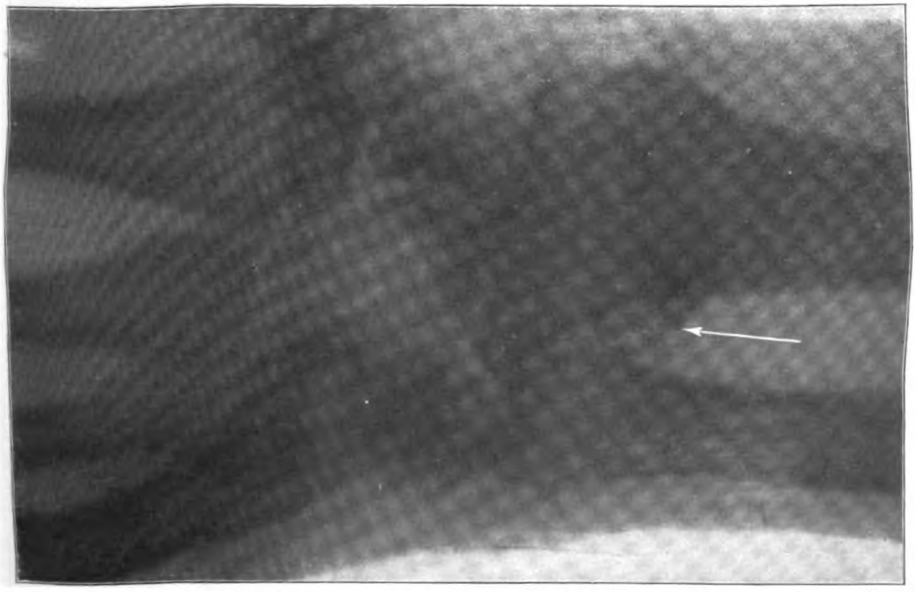
A somewhat easier way is to put a single broad band about the injured side allowing it to pass just beyond the middle line in front and behind, as directed for the strapping. If a width of eight or ten inches of the adhesive plaster is at hand, and if the patient is not too stout, this answers very well. It is not necessary to have the patient draw in the breath to expand the chest while the dressing is being applied, unless it is a binder that reaches clear around. Bear in mind that the purpose is solely to immobilize the ribs on that side while the bone is healing. This method will also relieve the pleurisy which often comes after the injury. This pleurisy is caused by the irritation of the broken ends of the bone, and sometimes from the same bruise which caused the break.

Traumatic Pleurisy

On account of the fact that the pleurisy is caused by injury, and not by the cold or infection which generally causes it, this kind is called "traumatic" or



Broken bone of Arm (Shown by Radiograph)



Broken bone in Wrist (Radiograph showing perfect healing. Arrow points to protuberance where bones grew together). *See p. 1173*

USES OF THE RADIOGRAPH

wound pleurisy. It is cured by relieving the irritation and movement of the ribs in breathing.

Ununited Fractures

If in the treatment of fractures the broken ends of the bone are not brought together and held there as they should be from the first the bone will not usually unite, and the condition as shown elsewhere becomes permanent. The limb remains practically useless, or at least has lost its power. The only remedy is a surgical operation, in which the two fragments are brought together and held by wire or other device until union takes place.

Healing of Fractures

If the two broken ends can be brought together and made to fit closely, healing usually begins at once. In three or four days the system will have thrown out about the ragged ends what we call a "provisional callous" or temporary protection. This first is later succeeded by a firmer and more permanent callous, which in three to eight weeks gives place in turn to a fibrous and bony union, and then the healing will be complete.

The radiograph of the hand shown elsewhere shows the callous still unabsorbed after a "Colle's fracture" of the lower end of the radius. This was a soldier whom I had attended, and who sought a pension on the ground that he had lost the use of his hand. But the X-ray picture showed the bones of the wrist perfectly normal, and he gave up his unjust claim for a pension. The illustration is also interesting as showing the wonderful arrangement of bones in the wrist.

COMPOUND FRACTURES

We have already noticed that a compound fracture is one in which we find there is an exterior opening, and that this fact complicates the matter very seriously. None but the most thoroughly competent surgeon should attempt to treat a compound fracture. The limits and purpose of this work will therefore necessitate a description of only the first aid to be rendered in emergency, and that that description shall be very explicit.

You have here an open wound. You can safely regard it as free from infection, and your chief requirement is to keep it so. Send for the surgeon at once, and let the messenger inform him of the nature of the injury. Cover the wound with an aseptic dressing. Then put the limb into the desired position, choosing the safest under the conditions. Any bleeding is to be controlled according to the directions elsewhere given.

To Treat the Wound

In treating the wound keep the fingers out of it unless they are wrapped with several thicknesses of gauze. Remove any splinters and coarse dirt as for an ordinary open wound. If bones are exposed they should be immediately protected with a wrapping or padding of gauze, then left so. Better not attempt to use antiseptic washes, but leave the cleansing of the wound for the surgeon. As soon as this is done and the bleeding checked, pack the whole wound with gauze or cotton, and apply the temporary splints.

If conditions necessitate washing of the wound, do it only with an antiseptic wash, or, if you must wash it with water, make sure that the water has been boiled vigorously for ten or fifteen minutes and then allowed to cool.

Before the surgeon comes apply temporary splints and dressings as needed, and if the injured person can be moved, carefully remove him to the best place for the surgeon's treatment. The shock of any serious injury will require that the sufferer be kept warm and quiet, without exertion, and in as comfortable a position as possible. Do not give whiskey unless the pain is quite severe. If much blood has been lost give all the water to drink that the person will take. Hot drinks are excellent stimulants. Coffee or tea is a better stimulant than whiskey. The aromatic spirits of ammonia is better still. A sixtieth to a thirtieth of a grain of strychnine is the best stimulant for the purpose of *staying* or *maintaining* the heart's action. Give it, if possible, if the pulse is very feeble.

Before the Surgeon Comes

COMMINUTED FRACTURES

The comminuted fractures may be either simple or compound. Any fracture where the bone is broken so as to present more than two broken ends, that is, where there are splinters or other fragments, is called comminuted. Send for a surgeon. Meanwhile apply appropriate splints and dressings to keep the limb or part in its normal position until he arrives.

Do not attempt to remove any loose fragments of bone.

Dislocation

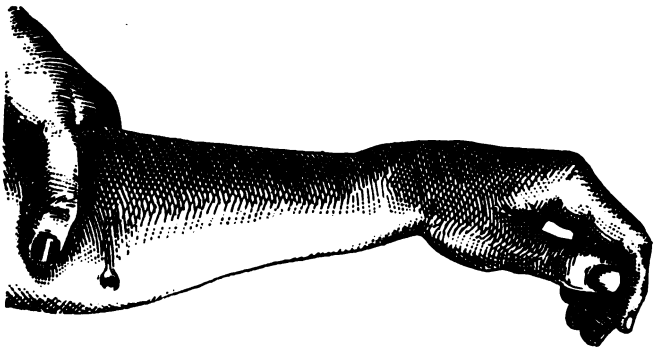
It is sometimes even more difficult to tell whether a joint is out of place than to tell whether or not a fracture exists. This is because there is often only a partial displacement of the joint, *(sub-luxation,* the surgeons call it), and the deformity may be very slight.

The *pain,* the *deformity,* and the *loss of use of the limb* are the three signs we find of dislocation of a joint.

But the pain is so great it would very often be well if some one of the persons who happen to be present, and when no physician is to be had at once, could put the bone back into place. There are just a few simple directions which any one can follow, and there is usually little danger of doing any harm. The attempt to put the bone back into place must not be repeated too often, as it is liable to cause inflammation of the joint. But even the surgeon finds it necessary to make the second or third attempt.

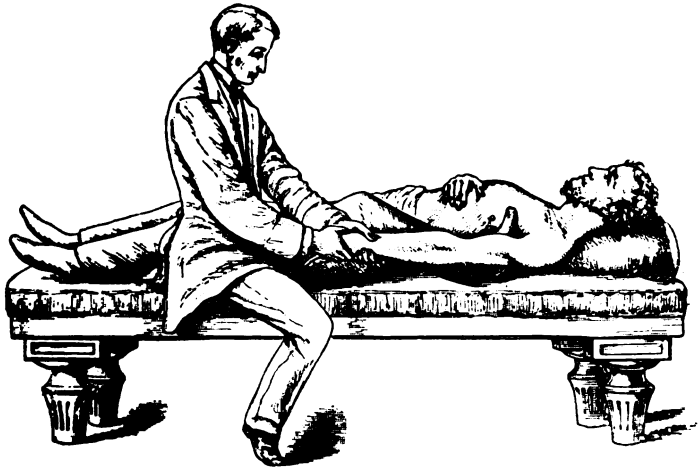
The pain is caused by the ligaments and capsule of the joint being put more or less severely on the stretch. When the joint slips back into place, therefore, a sense of relief is always felt. Sometimes also it can be felt or heard by the person reducing the dislocation.

The *deformity* due to a dislocation is characteristic in each case. Compare the injured joint with the



"Silver Fork" Deformity of Colle's Fracture, photographed half an hour after the accident

Partial or Green-stick Fracture of the Radius



Reduction of a Dislocated Shoulder-Joint by the Heel in the Axilla

well joint, and you can see what is wrong. When you get it right you can easily tell that also, the more so because at first there is no swelling to mislead or make the appearance deceptive.

DISLOCATION OF THE SHOULDER

The shoulder may be briefly described as a ball-and-socket joint. On account of its character and exposed location it is put out of place more frequently than all other joints taken together. It happens oftener in men than in women, and in middle age oftener than in childhood or old age. A sudden wrench or throw is usually the cause.

The head of the *humerus* (the bone of the upper arm), may be displaced either *forward,* as shown elsewhere, which is by far the most common kind of dislocation of the shoulder joint; or *downward* into the "glenoid fossa," the next most common kind; or *upward;* or *backward.* The two latter are exceedingly uncommon. The forward and the downward are the only two that we need to consider.

To Put Back into Place

The illustration elsewhere shows the left shoulder thrown out of place in the forward direction, the elbow held out from the body in the characteristic way, and the sinking of the injured shoulder. The rounded head of the bone can often be felt close up in the armpit. This is also sometimes called the "subcoracoid" dislocation.

It can often be brought back into place by pulling steadily on the injured arm while the heel of the

operator's foot, from which the boot has been removed, is pressed firmly up under the arm in such a manner that the head of the bone, as the arm is pulled out to its full length, can be pushed upward and backward into its socket. The manner of doing this is well shown on another page.

Another Kind of Dislocation

The characteristic deformity of the next most frequent kind of dislocation of the shoulder is well shown elsewhere, one a front view, and the other a back view.

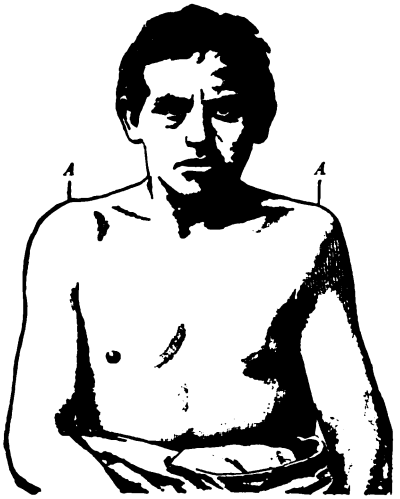
This is the *downward* dislocation of the head of the humerus. The only difference between this and the *forward* dislocation, treatment of which has just been described, is that the head of the humerus is a little lower under the arm, so that the arm points inward even more.

It is treated in the same way as the other, the pressure by the heel being exerted straight upward. There is usually not much difficulty in getting the head of the bone into place again.

After Drawn into Place

After this is accomplished all that is necessary is a pad under the arm to keep the head of the bone outward, while the elbow of the injured arm is brought to the side and held there with a suitable bandage, and the elbow and arm put into a sling so as to support the whole arm and keep the shoulder from dropping.

Other dislocations are treated on the same principles. The joint must be put on the stretch until the articular surfaces of the bone, aided by a little



Subcoracoid Dislocation of the Left Shoulder. A, A, point to the acromio-clavicular joints.

Subglenoid Dislocation of Shoulder
From *American Surgery*

Subglenoid Dislocation of Humerus
From *American Surgery*

TYPES OF DISLOCATIONS

pressure in the proper place and direction, come together in the natural way. Then pads and bandages are applied which will easily hold the joints in place.

In all cases where there is much swelling and pain both can be relieved by free applications of hot lead-and-opium wash, or even hot water continuously poured on.

INFLAMMATION OF JOINTS. (SYNOVITIS.)

The joint has a mechanism entirely its own, which gives to any inflammation of it a character different from that of ordinary parts. It will be remembered that the two articular surfaces of any two bones which form a joint are very smooth and slick and glistening, and always moist. These features are due to a most delicate membrane which covers each such surface as has already been said, and is reflected over the adjacent articular surface so as to form a pouch, which is called the "synovial pouch."

This delicate membrane constantly in health secretes a fluid which lubricates the joint just as oil would. When on account of injury or disease the joint becomes inflamed this membrane no longer secretes its fluid and the joint becomes stiff, painful and sore.

On the other hand, in some kinds of inflammation there is an excessive amount of the fluid poured out, and then the joint becomes swollen and puffs out in certain places. It is plainly full of liquid, for the

swelling is soft and puffy. The former kind is called a *dry* synovitis, for there is no effusion of liquid.

The Treatment

The *dry* inflammation requires *rest* of the joint, which must be complete, and usually the only way to get complete rest of the joint is for the person to go to bed and stay there till the inflammation subsides. Much help can be derived from soothing applications. Among these, hot flannels are always available, and most excellent. Lead-and-opium wash is good when the inflammation is in its earlier stages. Another excellent application is ichthyol in vaseline or glycerine, in the strength of one part to six. This application should be made freely and constantly. When the inflammation reaches a subacute or chronic stage, painting the surface with iodine does good.

The synovitis with effusion of liquid into the cavity of the joint demands much the same treatment. Tincture of iodine should be applied with a brush all over the joint every alternate day, and rest in bed strictly enjoined. A bandage skilfully applied so as to exert gentle pressure all over the joint helps in the absorption of the liquid. When it has partly recovered, hot applications also do well. A joint so inflamed must be treated promptly and thoroughly to avoid the danger of its becoming stiffened. Rest in bed is imperative.

TUBERCULAR INFLAMMATION OF THE KNEE

This is a kind of inflammation, found only in the knee joint, and chronic from the first, sometimes

called "white swelling." It affects only persons of marked scrofulous diathesis. The knee slowly swells, the swelling usually being in a sort of spindle shape, and the skin becomes white and glistening. There is not much pain or tenderness in the joint. The whole system is always affected, the blood being thin and scanty, and sometimes the patient has night sweats, and coughs.

The condition is entirely curable. The health of the system must be built up, and the inflammation taken out of the joint. Methods suggested above will do it, if patiently and faithfully kept up. For the general system, give internally syrup of the lacto-phosphate of lime in teaspoonful doses four times a day. Cod-liver oil and iron, the former taken pure and the latter in the form of the syrup of the iodide in ten to fifteen drop doses in simple syrup, should be taken for some weeks or even months. Abundant but carefully selected and well-cooked foods are necessary. Outdoor life is advisable for such a patient. It must be remembered that you have a *tubercular* inflammation to deal with and the system must be built up.

The Treatment

DROWNING ACCIDENTS

There is no use of a sweeping declaration to people that they must not risk a sail in a small boat, nor a canoe in rough water; nor to the giddy fool who will insist upon rocking the boat, just to hear the girls scream, that he must not. People, espe-

cially foolhardy (not daring), young people, will continue to get drowned.

Prevention

Every good swimmer should understand and practice the best ways of rescuing drowning people. Others who cannot swim should know something of how best to keep from drowning when thrown into the water. The human body weighs only about one pound when in water (less in salt water), and the very slightest object or trick will buoy it up. If one can *strike and kick at the same time* one will not sink, for that is swimming.

The following suggestions may afford some assistance:

(1) Relieve drowning persons of alarm by shouting to them that they shall be saved. A moment of self-possession in the water would save many who are otherwise lost.

(2) A very slight thing—an oar or a small block of wood—will suffice to keep a person on the surface if held steadily under the chin, while the whole body is submerged. This is the reason that even the gases generated in the body will buoy it up and make it come to the surface after a week or ten days.

(3) When a boat is available for rescuing, let the person be taken in at the stern of the boat, not at the sides, to lessen the danger of capsizing.

To Handle a Person in the Water

(4) It is well known that a rescuer must not allow himself to be seized by a person struggling in the water. Better wait until you can seize them by the hair or clothing.

To make a drowning person release his hold upon you, seize him by the chin so that his chin rests in the palm of your hand while with your fingers of the same hand you press both sides of his nose and shut his wind off. Also at the same time forcibly bend his head backward. Be quick to take any advantage thus gained and get a proper hold on him. Swim on your back, keeping steady strokes with your legs and disengaged hand. You have only two pounds to keep up.

(5) In sea bathing, if help approaches, do not attempt to breast the current coming from shore, but merely try to maintain your position till the help arrives.

An ingenious friend of mine has invented a jacket which can be worn as any other vest, and which makes it practically impossible for any one wearing it to drown. The water coming into contact with certain chemicals suddenly generates a gas which closes the valve and balloons up the lining of the garment so quickly and so surely that effective *water-wings* are at once created.

Resuscitation of the Apparently Drowned

The best methods of resuscitation have been the cause of much study and experimentation of late years. One of the leading scientific bodies of England, the Royal Society of Medicine, appointed a committee a few years ago whose duty it was to investigate thoroughly the entire subject. This committee spent much time and labor and finally rejected altogether former practices known as the "Sylvester

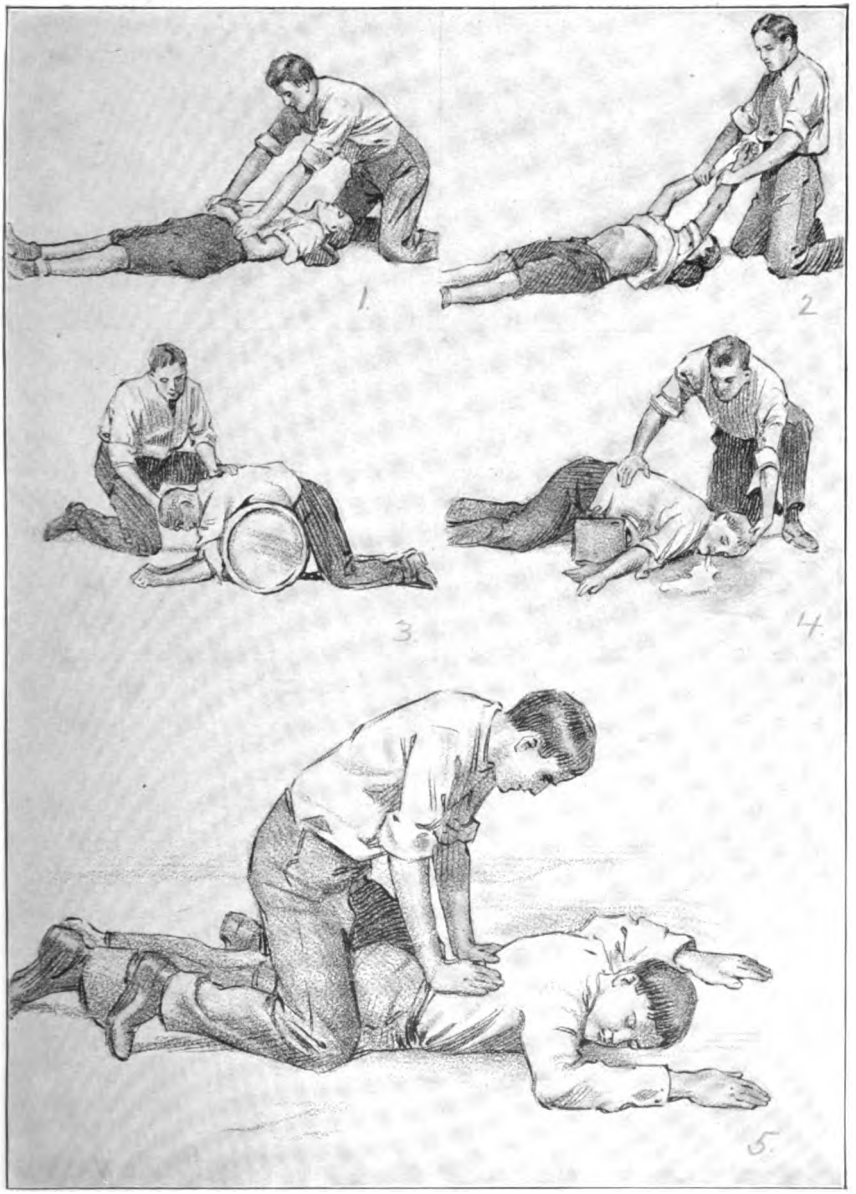
Method," which has been taught for years, and pictures illustrating which we are able to see everywhere.

It was found by experiment that the Sylvester method, which is one chiefly of artificial respiration, and which I will describe later, is not adapted to the relief from drowning accidents, for the reason that the position given the body is not adapted to that best for resuscitation. They finally recommended a substitute method, which is much more effective, and which is called by the name of "Schafer's Method." I have not the exact rules at hand, but the directions given below are essentially those recommended. It is found that death from drowning is essentially one from suffocation and from taking water into the lungs.

Schafer's Method

(1) Quickly turn the body on its face, pull the tongue well forward, and lift up the hips, or the body by its middle. If a log or barrel, or some similar object, is available place the body across that for a moment, face downward. This will clear the mouth, throat and lungs of any water they may contain.

(2) Then place the body on the ground face downward and head down-hill, or if the ground is level get the same effect by folded garments or some such object placed under the body at its middle. Now take position on one side or astride of the body and with both your hands press hard upon the back and sides over the liver. The object is to force the blood contained in the liver and portal veins (one-fourth of the entire volume of the blood), *onward*



1 Compression of Chest. 2 Expanding Chest. 3 and 4 Expelling water from throat and lungs. 5 Exciting the sympathetic nerve system.

RESUSCITATING THE APPARENTLY DROWNED

into the heart to stimulate its action. This pressure must therefore be intermittent. Make the pressure downwards and forwards deliberately and slowly increased each time while you count five, then let up while you count three. Repeat this motion steadily and regularly five to eight times a minute.

This is more effectual than artificial respiration by the old Sylvester method. It should be kept up until the person gasps for breath.

The Method of Some Operators

(3) Regularly pulling the tongue forward to correspond with respiration, as shown by the demonstrations of some very successful operators, has alone been happily effective in restoring life after prolonged suffocation from drowning. It was done by seizing the tongue. A better way is to take hold of the lower jaw by placing the fingers under the angle of each jaw and pulling forward, for, as is well known, this action opens the larynx effectually.

A good plan is for one operator to do this while the other kneels at the side of the body and uses the method described in Rule (2). The action of the two operators should be done alternately, not at the same instant, so that while the first relaxes his pressure on the chest walls, the second opens the larynx to admit an influx of air.

Persistence Will Pay

(4) Don't give up. Persons have been revived after three hours of steady work.

(5) Keep the body warm. Wrapping in hot blankets, if they can be had, will help much to relieve the shock. Also, occasional inhalation of the aro-

matic spirits of ammonia will help to stimulate the nostrils, and a dose of one teaspoonful is to be given as soon as the patient can be made to swallow it.

Make no effort to "get the water out of the stomach." It would be difficult to imagine what harm water could do in the stomach anyway. Remember that it is failure of the breathing, and not the presence of any water that is doing the harm. Keep the jaws well forward so that the tongue may not fall back upon the epiglottis, and thus obstruct the respiration.

Artificial Respiration. Sylvester's Method

First. Lay the body, with the head low, on its back, with a rolled-up garment under the back so that the head falls to a lower level than the shoulders. Then kneel at the head. Grasp the arms at the middle of the forearms and slowly press them down upon the chest in such a manner as to squeeze all the air out of the lungs.

Second. Draw the arm to full length over the patient's head for a second or two, and then bringing them down press them upon the chest as before. Repeat this motion seven to ten times per minute. It is essential that during this movement the tongue be held forward, preferably by an assistant holding forward the angle of the jaw.

Why not So Effective

This method is not nearly as effective as the one formerly described, for the reason that it does not provide for forcing the blood upon the heart,—a quite essential item. Indeed it is quite possible that a very great deal of the difficulty and failure of the breath-

ing arises from the fact that the blood is allowed to collect in the great abdominal organs and cavity.

This condition is given as distinctly the predominant one in "shock" and the state we are considering may be partly due to it.

Either one of the two methods, but preferably the former should be practiced by people upon one another in order to familiarize them with the different steps.

SUFFOCATION

Suffocation may be caused by inhaling smoke, or poisonous gases, or by smothering. A physician should be called at once, but it will not do to await his coming. Get the patient into the fresh air without delay. Remove all tight clothing and pull the tongue forward. Simply pull the under jaw forward as described above.

Place the head lower than the rest of the body, almost standing the patient on his head for a moment. Then put him on his face and begin the method of inducing respiration as first described.

While doing this be sure that the tongue is not allowed to fall back into the throat upon the epiglottis and prevent breath entering the larynx. Envelop the body in dry hot flannels or blankets.

ABSCESS, RECENT. When a severe bruise has been received, the main question is whether or not there is going to be an abscess form. If so, of course it will add much to the seriousness of the condition. To

prevent an abscess we reduce the inflammation as much as we can, and this is the reason that we are so particular to place the injured part in an easy position and give it rest. ***Rest*** helps more than anything else the absorption of the products of inflammation. The application of *cold* water or ice is also for this purpose. Heat rather encourages suppuration. Anything that tends to take out the inflammation, such as the *evaporating lotion* spoken of, lessens the danger of an abscess forming.

Signs of suppuration (abscess), are the occurring of a peculiar softness in some spot (usually the worst), which we call "fluctuation." The pain will be diminished rather than increased by an abscess forming. So also will the redness, except in the one spot, and the swelling.

The Treatment

There is only one way to treat an abscess when once it has formed, and that is to open it and let the pus out. It should then be washed out, "irrigated," we call it, with an antiseptic solution, packed with gauze, and allowed to heal *from the bottom.* This latter is very necessary, and prevents the forming of "pockets" or "sinuses" of pus, which would mean a breaking out again just about the time it ought to close up and be entirely well.

The object of the gauze packing is to keep the abscess open at the outlet till it heals at the bottom. Also the slight pressure of the packing makes it heal quicker, and without the exuberant granulations which used to be called "proud flesh." It was then,

as now, known that these do not make a good healthy scar, or "cicatrix," but the idea that they were in any sense malignant was never well-founded. The peroxide of hydrogen is the surgeon's usual destroyer of pus, and it can be poured into an abscess full strength or half or two-thirds water. It causes no pain and is the best kind of a disinfectant for this purpose. Any of the other antiseptics will do, however.

ABSCESS, OLD. It often happens that pus has formed somewhere and has collected in that spot or "burrowed" to some other, and has remained there for a long while. Such a collection of pus is then called by surgeons a *"cold abscess."* The pus in such cases is almost always the result of tubercular conditions, that is, it is the product of the tubercle bacilli. There is no pain or fever to accompany this kind of an abscess.

The Treatment

It must not be considered that I am advising the *home* treatment of abscesses of either kind, by members of the family. A surgeon should always be called. But the fact that sometimes abscesses are neglected until they break open themselves, and cause a "running sore" makes it needful that people generally should know something about them and the way to treat them. Even after they break open, unless the opening is quite free, so that the abscess can be emptied, washed out, and packed as directed, it is better to go and see a surgeon. This will be unavoidable for a *cold* abscess, which would never

heal of itself, by the use of the common home methods.

AIR, ACCESS OF, TO WOUNDS. I have said, which was doubtless already known to the most of my readers, that germs of many kinds, and spores of those germs, are floating about in the air. These are sufficient in any atmosphere to infect an open wound. Not often will the variety of such infection be as malignant as, for instance, erysipelas, but it will be sufficiently so to make the person very ill, possibly. Now, let the fact be thoroughly understood that it is only an *open* and *fresh* wound, or the *new* abscess, the kind first described, that is in danger of any such infection. Air may irritate a burn a little, but that is exceedingly doubtful. It is the rays of *light,* not air, that make a sunburn or any kind of a scald or burn smart. A wound is not in danger of any such infection after it has begun to granulate, which is after the first week.

The air of the dry mountain regions is freer from germs, and does no such harm to an open wound as does the air, for instance of a factory, or warehouse, schoolhouse, or dusty street.

ALCOHOLISM IN RELATION TO INJURIES. Surgeons are always "leery" of the injured man who is an alcoholic subject. He will not stand the anesthetic nearly so well, and any kind of a severe injury is liable to bring on delirium tremens, whether he has ever had them before or not.

AMPUTATION, WHEN NECESSARY. This is a question

often difficult of answer. Since the days of asepsis and antiseptic treatment we do not have to amputate as often as they used to. Still, malignant tumors, and compound fractures with suppuration following, will occur, and it is better to sacrifice the limb than the life. It is even better to err on the safe side as regards life. Conservatism may be carried too far, and it is not well to wait when the amputation ought to be done.

ANESTHESIA. People generally are afraid of chloroform and ether, yet comparatively few fatalities occur due to either one. The figures show that ether is much safer than chloroform. Ether stimulates the heart, while chloroform depresses its action. But ether irritates the respiratory tract, and is therefore objectionable when there is any tendency toward lung complications. Chloroform is never used in heart diseases, but is preferable to ether when the kidneys are affected. In confinement cases chloroform never does any harm, and it does relieve the pains, and seems to relax sufficient to make labor easier. (See *Maternity.*)

Nitrous oxide (Laughing-gas), is almost entirely safe. It is said that not one death occurs in 100,000 cases of its use, while that for ether is about one in 10,000, and for chloroform one in 5,000. The trouble with laughing-gas is that its effects last only for two or three minutes.

Spinal Anesthetics

These are becoming very popular, for the reason that they do not take away the consciousness. But

this is sometimes an objection also. Cocaine, and its kindred drugs, are the ones used in this way. The drug is injected into the sub-arachnoid space of the spinal chord, anywhere along its course, but preferably between the lumbar or cervical vertebrae, and in a very few minutes all feeling is gone from the lower limbs or parts, according to the place chosen for the injection. Morphine and hyoscyamine are also injected directly into the tissues for a similar purpose.

ANKLE, SPRAINED. See *Sprains.*

ANKYLOSIS. A permanent stiffening of a diseased joint, which is nature's way of healing it, and is therefore sometimes sought by surgeons, when the joint cannot be cured without leaving it stiff. See Hip-joint disease, also Knee-joint.

ANTISEPTICS. These are the most valuable things on earth, and everybody should appreciate them and understand their use. They save more lives than could be readily estimated, because they destroy bacteria, the great enemy to human life. Their general use among surgeons explains chiefly the fact that the average life of man is ten years longer than it used to be. If only everybody could be gotten into the habit of using them, they would be still more effective. And that time is evidently soon coming. For application in surgery we speak of germicides as *antiseptics.* The sanitarian uses the word *disinfectants* to mean about the same thing.

ASEPSIS. Of course the ideal state of a wound is one in

which no poisonous substances (germs), have ever been admitted to it. That is just what we mean by *asepsis, without* septic infection. That is what we all strive for in the hospitals, and in operative work and dressing wounds everywhere. But it is not often possible except in the hospitals. It is the purpose aimed at in the use of the first aid packet, namely, using a sterilized dressing, and using it so quickly that no poisonous germs gain access to the wound. Such dressings are of course unnecessary when the skin is not broken.

ARTERIES, WOUNDED. See *Bleeding.*

ARTHRITIS. *Inflammation of the Joints,* (which see).

ARTIFICIAL EYES, LIMBS AND NOSES. Thanks to the ingenuity of man these can be had, and the effect is gratifying. It is a matter always for the surgeon to handle.

BACILLI, BACTERIA. See *Index.*

BACK, PAINS IN. See *Lumbago.*

BANDAGES. See *Index.*

BONES, DISEASES AND INJURIES OF. These heal as well and kindly as flesh wounds do. It is always necessary that dead (necrosed), bone be cleaned away. These conditions are hardly within the province of home treatment, but require the surgeon's aid.

BOW-LEGS, CURE OF. It is not at all necessary that the child with bow-legs should grow up that way, and it is a crime to let him or her go without the trouble being corrected. Nor is it necessary to put on iron splints or steel braces to cure the deformity. In

most cases, if taken while the child is young, not more than seven or eight years old and better not over three or four, still better about two, a plain straight splint, not heavy, cumbersome, nor painful, well wrapped about with cloth and padded, is all that is needed. Let this be bound snugly but not painfully tight against the leg, on the outer or the inner side, whichever is easiest, and let the child wear it day and night. When it becomes loose it must be tightened, and must be kept straight. A few strips of adhesive plaster may be required to keep it in place. In a very few weeks the legs will be seen to be less bowed. Re-apply the splints, and keep at it.

Make the splints very light, and even if they give and bend a little they will still gradually draw the legs into shape. Feed the child plenty of mashed potatoes to harden the bones. The bones in this condition always lack in the earthy phosphates. Therefore feed the potatoes. Also give one to two teaspoonful doses of the syrup of the lacto-phosphate of lime three or four times a day. It is not necessary to keep the splints on until the legs get perfectly straight, for they will go on and grow straighter after the splints are removed.

BRAIN, INJURIES OF. Apoplexy is due to a "clot on the brain" as it is popularly styled. This clot may come from most anywhere in the circulation. It causes paralysis, loss of consciousness, and a deep, snoring, jerking style of breathing, called "stertorious."

When there is *compression* of the brain from other causes there is also loss of consciousness, and there will be partial paralysis, with breathing similar but more of a puffing of the lips on account of facial paralysis. All that can be done for such persons by the by-stander is to keep them in a comfortable position, and undisturbed.

BREASTS, SORE. See *Maternity.*

BROKEN BONES. See *Fractures.*

BUBO. Bubo is a glandular swelling of the groin. It begins with a small lump, not at first sore nor particularly tender. Nevertheless, then is the time to take care of it. Consult a surgeon, or else apply some blue ointment, and bind a pad on the swelling. The object of this pad is to secure gentle but constant pressure. The bandage will have to go clear around the hips. I have cut short a good many such swellings which would otherwise have developed into a very painful abscess.

It is sometimes difficult to tell a bubo from a hernia, or rupture, and in such case it is very important for anyone suffering from this cause to consult a surgeon. The rupture is apt to cause more pain, and also constipation.

BULLETS IN WOUNDS. Leave them there. Never probe for them, nor attempt to get them out. That is a surgeon's business.

BURNS AND SCALDS. There are many things recommended for burns which do not relieve the pain at all, and therefore they seem to me useless. Such are

the bicarbonate of soda (baking soda), vaseline, sweet-oil, cream, starch, flour, and the like.

It is customary when speaking of burns to divide them into three classes. This is convenient because each class requires different treatment. The classes depend merely upon the *degree* or *depth* of the burn. They are as follows:

First degree,—reddening of the skin, attended by pain and heat.

Second degree,—blistering.

Third degree,—such complete charring of the flesh that it *sloughs,* forming ulcers, as it were.

The Best Remedy for Burns

Now, even a burn of the first degree is so common and so painful that it is well worth while to be prepared for it. The simplest, best, cheapest remedy, and the one easiest kept on hand is *Carron Oil,* so named from the iron furnaces where it was first used. It is the reliance of surgeons, and every family should know of it and how to make it, for it gives instant relief in the ordinary burn. It is made by mixing about equal parts of raw linseed oil and lime water in a bottle or dish and shaking or stirring them together. It makes a creamy, yellowish mixture, which can be *poured* on the burned spot, no matter where it is. Put it on as thickly as it can be done, then place over it lightly a piece of lint or cotton cloth thoroughly soaked with it.

What Causes the Pain

According to the discoveries of Finsen, it is not the air but the *light* which causes the pain in a burn. The orange-colored oil will exclude the white rays of light

TO RELIEVE A BURN. *See page 1411*

very largely, and that seems to be the principal reason why it is so quick and active in the relief of all kinds of burns.

Picric Acid for Burns

Picric acid is said to be very excellent in the treatment of burns. It is painted on the surfaces, but is not so easy to get nor so convenient as the remedy just described. If raw linseed oil is not to be had for making the Carron oil, sweet oil will answer. It is better to keep the lime water and the raw linseed oil on hand separately, and mix them when needed, as the mixture does not keep as well as the separate ingredients, and besides it acts better when freshly made.

The International Journal of Surgery says that there is nothing which deadens the pain of a burn better than picric acid. Seventy-five grains of the acid are dissolved in two ounces of alcohol, to which a quart of water is then added, and this wash is applied freely to the burned surface. It should not be used after granulation begins to take place. This would be four or five days.

Renew the Dressings Frequently

Let the bandages be loose for burns, and let the dressings be renewed frequently, as often as the pain returns, for the first two days. After that the best dressing is a mixture of boric acid in vaseline, about one part in seven, the powdered boric acid to be rubbed into the vaseline.

For burns of the first degree, if not extensive, the application of Carron oil will be all that is needed. But it must be remembered that the effect upon the

system of even a superficial burn, if extensive, may be very great.

An Extensive Burn Dangerous

It is a fact well known to physicians that a burn causing only reddening of the skin, if extensive enough to cover two-thirds of the surface of the body, will almost always and inevitably result in death. Complete destruction of the skin of one-third of the surface of the body will also prove fatal. In burns of the third degree, depth of the burn and amount of the tissue charred will determine the result. Age, also, has much to do with it, the old and the young not standing it well.

And this brings us to consider the constitutional treatment of the unfortunate victim of fire or heat. It is the constitutional or systemic treatment which differs chiefly for the three classes of burns. The local treatment of all classes is, in the main, the same for the first day or so.

The Shock from a Burn

We all know, by this time, what shock is, and what it means. In extensive or severe burns there will be much prostration and shock, and early death will be from this cause, if death does occur early. The treatment for shock is the same as in other conditions: namely, keep the body warm, use stimulants such as whiskey and aromatic spirits of ammonia, just enough to sustain the patient, also small doses of opiates if needed. Large injections of very warm salt solution, one teaspoonful to the pint of water are valuable aids. Quiet and perfect rest must be enjoined. Later, digested foods, light and nourish-

ing, and keeping up all the secretions, will be important.

The Question of Pain

It is a fact not generally recognized by the laity that pain is not a safe criterion by which to estimate the severity of burns. Some of the worst I have ever witnessed, in which the patient died within a few hours, caused no pain at all. The reason was that the outer layer of the skin was destroyed, and with it the terminal nerve filaments, so that the patient could feel no pain from any cause. But on the other hand the pain from even a burn of the first degree may be intense, and for this reason requires quick and thorough relief. If not relieved by external applications opiates must be given to control it, for the suffering will itself undermine the strength.

Adherent clothing and dressings afterward must be removed with care, in order that the skin may not be broken more than is necessary. Blisters, when they form, should be pricked with a needle just enough to relieve the pressure and permit the fluid to escape. This should be done at the lowest point in each blister.

The scars from deep burns are sure to draw severely in healing, and this is liable to keep up for a long time. It can be prevented to some extent by splints, and this should be done, also by passive motion, that is, by moving the limbs or parts forcibly with the hands. Marked deformities sometimes result, and require the surgeon's efforts to correct them.

Burns from Other Causes than Fire

Burns from carbolic acid need pure alcohol to be dashed on the surface immediately. Alcohol is an antidote in some degree to carbolic acid, and should be used freely.

Burns from caustic lye, potash, and other alkalies should be dashed over with water and vinegar, or vinegar pure. They may then be flooded with water, and treated as any other burn.

Burns from acids other than carbolic are best washed freely with any alkaline solution, preferably with lime water, solution of baking soda, very *weak solution* of washing soda, or some kind of weak potash solution.

If the scalding substance has been swallowed, use weak vinegar solution for the caustic alkalies; whiskey and water for carbolic acid, also water and glycerine; and for the other acids weak solutions of baking soda and lime water. In every case have the patient swallow also milk or the white of eggs.

CALCULI. See *Gravel.*

CALLOUS. Small areas of hardened skin, caused by long-continued friction, constituting the familiar "callous," are easily removed. One dram of salicylic acid, rubbed up with or into an ounce of vaseline, and applied at night, with sufficient covering to protect and preserve the application, will destroy the callous, and cause it to peel off. The application must be repeated for three or four nights, just as in the treatment of a *corn,* for that is what a corn is, nothing more than a callous.

CARTILAGES, LOOSE, IN THE JOINT. It occasionally happens that a piece of one of the cartilages which enter into the formation of a joint, usually of the knee, will become chipped off, and will go floating about, or slipping about in the joint. The individual will feel a sudden slight break or jerk in the joint, and will a little later find out that he is lame, and that the action of the knee is very much impaired. The only cure is fixation of the joint for awhile, and that must be done by a surgeon.

CATGUT. Catgut is no longer made from the cat, but from sheep. It is used by surgeons for tying arteries, for ligatures, and for suturing or sewing up wounds. It has the advantage of being sterilizable, and of being absorbed by the tissues in the course of a few days, so that the stitches never need to be taken out, as they do when silk is used.

CATHETER. This is a most necessary instrument sometimes, when it becomes unavoidable that the bladder must be emptied by artificial means. Its use is entirely within the realm of the physician, until a patient for whom it must be constantly used can learn to introduce it for himself.

CIRCUMCISION is a subject that must be mentioned, for it is so often neglected. In cases of nervous affections of a male child, wetting the bed, etc., the foreskin should be examined to see if it is not too long, or is not adherent. If either is the case, medical aid should be sought. It is a great mistake to allow boys to grow up with any such condition unrelieved.

CLEFT PALATE. See also *Hare-lip.* One of the most distressing and hindering deformities of birth. If only the soft palate is cleft, the operation will not amount to much, and can be done at almost any age. But when there has been failure of the two sides of the upper jaw to complete their union in the middle line, with the result that the hard palate is cleft, the operation should be delayed until the child is seven or eight years old.

CLUB-FOOT. This is a condition in which either the muscles only, or the bones and muscles may be at fault. Sometimes the child is born with the deformity, and sometimes it comes on after birth, and is in that case due to degeneration of portions of the spinal cord causing infantile paralysis.

The chances for recovery are fairly good, provided the corrective treatment is kept up for a long time, but the recovery will seldom be so complete that the foot will be the same as though it had never been affected.

In a majority of the children born with club-foot the error can be corrected by simple pressure with the thumb and finger. When this is so it is very important that some mild device be used to maintain the foot in the correct shape. A light splint and bandages may answer, but the best way is to have a plaster of Paris cast put on lightly, care being taken to even the pressure, and removed every two or three weeks as it is necessary to insure against harm. Then the cast must be immediately re-applied.

In other cases steel braces may be necessary, but those are very few, and in most hands the plaster cast will produce best results.

Rarely the bones are so displaced that an operation is necessary, but even when so, like all other such deformities, it should be corrected without permitting the child to grow up so frightfully encumbered.

COLLATERAL CIRCULATION. This is a thing to be always counted on, and explains why the circulation of a part can be apparently cut off, and the part still live. It is the valuable fact which allows us to tie off an artery or vein and close it entirely.

COMPOUND FRACTURES. See *Fractures.*

COMPRESSES. These are cold or hot applications to an inflamed part, made by swathing it in cloths wrung out of cold or hot water, and are frequently changed. They are good to alternate in the treatment of chronic inflammation, and either is good in an acute inflammation, the one to be chosen which gives the most comfort.

CONCUSSION OF THE BRAIN. This is a condition due to injury, in which there is either a certain amount of *bruising* of the brain tissue, or a more severe injury amounting to laceration of the substance. In the latter case there is often some degree of hemorrhage causing *pressure* on the brain, which is called *compression.* After a fall on the ice, a blow on the head or sometimes when one jumps from a height and lights firmly on his feet without sufficient spring and bend to his legs, there is a momentary dizziness, which

is due to this sort of injury. If slight it soon passes off, but if not the face becomes pale, the pulse fluttering, and he may even become so nauseated as to vomit. If, however, the injury be more severe, he will lie quietly, with skin cold and clammy, and unconscious but able to be aroused. He will reply to questions in unintelligible words, will want to be let alone, and, as reaction comes on, will probably vomit.

By no means allow stimulants to be given to such a person. Let them lie in absolute rest and quiet, taking care that they are warm and the body in a comfortable position. Usually undisturbed quiet is all that is necessary, unless convulsions come on, when a whiff of chloroform if it could be had, and if not, ice to the head, is best. Recovery from such an injury will usually take place within a few hours, and the best remedy is sleep and rest. If the body becomes cold, enclose it in warm blankets, and put hot-water bottles about between the coverings.

CONGESTION. Congestion means an increased amount of blood to the part, whatever that is. There is a *normal* congestion of glands, muscles, skin, and apparently of brain tissue, when in action. This subsides during rest.

The first stage of any *inflammation* is congestion. It is at this stage that *counter-irritants* do the most good. They act by contracting the blood-vessels of the part, and so squeezing the blood onward. We put a mustard plaster about the lungs when they are

congested, which is the first stage of pneumonia. Other new inflammations are treated on the same basis.

Surgeons recognize also that in a state of congestion there is an increased number of white blood-corpuscles present, and that they escape from the blood-vessels, and are to be found in the surrounding tissues, and with them some of the watery elements of the blood.

CONJUNCTIVITIS. See *Diseases of the Eye.*

CONTUSIONS. See *Bruises.*

CRACKED LIPS, NIPPLES, ETC. Cracked lips are most troublesome and require something more than salves. Pure *fir balsam* is the very best remedy when it can be had. It sticks and holds the parts together until they have a chance to heal. Another good remedy is *litharge paste.* Still another can be made of one part resin and six to ten parts mutton tallow, or simple cerate may be used instead of the tallow.

CREPITUS. Crepitus is the grating sensation that may be *felt* (seldom heard), when the fragments of broken bones are rubbed together. We sometimes *hear* a similar result between two inflamed mucous membranes, as in pleurisy, or in the air-cells in the first stages of pneumonia.

CYSTITIS. Cystitis means inflammation of the bladder, which see.

DISLOCATIONS. See *Index.*

DRESSINGS, SURGICAL. See *Index.*

ECCHYMOSIS. This is the condition familiarly known

as "black-and-blue." The color is due to blood escaping from ruptured capillaries or minute veins, and finding its way through the tissues. It soon becomes absorbed, and unless it becomes infected, as might happen were the skin broken, no harm is done. Possibly some good may have been done, for the man with the *blacked eye* may have learned a lesson.

EFFUSION. Effusion of serum of the blood, sometimes with fibrin, or pus-cells, is often due to injury, as well as to inflammation. Unlike ecchymosis, these elements of the blood may escape without rupture of the capillaries or minute blood-vessels.

EMPYAEMA. Empyaema is such an effusion into the pleural cavity when pus is present, so that the process is an infective one, which adds greatly to the seriousness of it. Indeed the condition is then so severe that surgical means must be employed to get rid of the pus.

EPITHELIOMA. This is a variety of cancer, which see.

ERYSIPELAS. There is a surgical form of this malady, as well as the medical already described. This kind occurs as an infection of wounds. It is not frequent, and is avoided by carefully keeping all surgical patients and surgical dressings away from the disease. It makes a very critical condition when it does occur.

ERYSIPELATOID LYMPHANGITIS. This is a blood-poisoning in which red lines run up the arms if the hands or fingers is the seat of infection, which is usually the case, or of the legs if the foot is the point of infection.

It is frequently seen in butchers, and handlers of hides, or any animal substances subject to decay. Treatment consists in cleaning *surgically* the point of infection, and thoroughly disinfecting it, then applying a mixture of one part ichthyol and five to ten parts pure glycerine, keeping all the reddened parts of the skin well saturated.

ETHER. See *Anesthetics.*

EYE, INJURIES OF. See chapter on *"The Human Eye."*

FEVER, SURGICAL. There is generally a small amount of fever after a severe injury, which is merely incident to the process of repair, and needs no treatment. Anything beyond this, when the fever is so pronounced as to be noticeable and call for treatment, the trouble is sure to be found in some form of *infection,* and must be treated accordingly. The point of infection must be found and made surgically clean, when the fever will promptly subside.

FIXING. The fixing of a joint firmly so that the surfaces of the articulation cannot move on one another is very important in the treatment of joint inflammations. Sometimes, especially in older persons, it can be done by placing the joint in a position for perfect rest. But in children, and in some adults the joint will have to be supported by mechanical means such as would be furnished by splints, starched, or plaster bandages.

FOMENTATIONS. Fomentations are always applied hot. The purpose is to allay inflammation and ease the pain, which is caused by relaxing the tissues. Cloths

wrung out of hot water, and frequently changed, are the means used.

FOOT, PAINS IN THE ARCH OF. This is a very frequent, and often misunderstood source of misery. When pain is nearly constant in the instep on standing or walking, the explanation will be found almost every time in a foot that is more or less "flat." The arch of the foot is formed by ligaments which pass from one bone to others, and on this ligamentous arch the leg stands, and the weight of the body is supported. If the arch is not high enough, so that it gives to the weight of the body too much, pain is caused. It is a very distressing, sickening pain. It is not relieved by liniments of any sort.

A very simple and effective treatment can be applied by anybody. Place a good firm pad, of a thickness to be determined by the amount of the flatness, under the arch of the foot, and bind it in place with a light bandage. Try a thin pad first, and gradually increase the thickness of it. The pain will be felt less and less until finally it will subside altogether. A high-arched shoe or boot should then be worn.

GUM-BOIL, TO PREVENT. When the swelling of the gums first begins, paint it all over with pure iodine. This will abort a gum-boil in nine cases out of ten. If the first application is not enough, repeat it next day, and unless pus has already begun to form, this is all it will need. When the pus has formed the only way is to open it. The opening may often be

done along the edge of the tooth, so that no cutting is necessary. But if not, the cutting must be done. The mouth should then be washed out with a mild antiseptic solution, and the gum will get well.

GUNSHOT WOUNDS. Gunshot wounds have usually this peculiarity: that they are aseptic. The only treatment therefore admissible is to place a gauze pad over the place of entrance and of exit of the bullet, and allow it to heal. Never under any circumstances probe for a bullet, nor endeavor to find it. That is work for the surgeon.

An important exception to the above rules of treatment is that necessary for the wounds of toy pistols. On account of the amount of garden soil which the urchin usually carries with him, and the danger of infection by the *bacillus tetanus,* and consequent attack of "lock-jaw," it is most essential that such a wound be immediately and thoroughly cleaned out. Carefully take out all rags and pieces of dirt, wash the wound thoroughly, then pour pure turpentine into it to disinfect and take the soreness out of it. After the turpentine has had a few minutes in which to evaporate, pack the wound with iodoform gauze, and apply a loose bandage. Renew this gauze packing every day. You will thus give the wound the best possible opportunity to heal without any such complications as lock-jaw.

HAMMER-FINGER. This is a permanent bending of the finger at the middle, so that the second joint is permanently flexed, and the last phalanx is drawn up so

as to rest on the first. The cords on the under side are drawn, and it has been suggested, and often tried, to cut these under the skin and pull the finger straight, but the results have seldom if ever been quite satisfactory. A better way is to cut out the bent joint entirely, and then it is easy to get the finger straight and keep it so, but it will always be stiff.

HAMMER-TOE. This is a similar trouble in the toes. It generally affects either the second or the little toe. It is to be treated in the same way, by cutting out the bended joint. A more satisfactory result is here to be expected.

HEAD, INJURIES OF. In all wounds of the head when severe, perfect quiet, with cold water or ice applied to the head are necessary. The scalp bleeds freely enough when cut, but it also heals readily. Firm pressure, with the hard bones of the skull beneath, is usually effective to stop bleeding.

HEALING. This subject is mentioned for the purpose of stating that there are no remedies, strictly speaking, which make wounds or sores on the body *heal,* except as they assist by furnishing more or less perfect protection to the tissues. The body itself does the healing. This is of the very greatest importance, because it means that a perfect dressing of gauze alone, so long as it is aseptic and absorbs the discharges as fast as occur, gives as much help to the healing process as can be given. The only thing that a so-called "healing-salve" could ever do is to provide protection for the wound, and the objection to any

salve in the mind of the surgeon, is that it may sometimes prevent absorption of the discharges by the dressings, and if so will surely do harm. All that needs to be done is to keep the wound, new or old, *surgically* clean, and the system will do the rest. Irritation to an outside surface can be allayed, and is a far different matter. A sluggish ulcer may also be *stimulated* by applying such remedies as an ointment or gauze which has been thoroughly saturated with the balsam of Peru, for instance, and in that sense the healing is hastened.

HEMORRHAGE. See *Bleeding*.

HOLLOW-FOOT. Hollow-foot is not the opposite of flat-foot. It is a condition of exaggerated arch of the foot, but it is due to disease contraction of the deep muscles of the foot, or to paralysis of the muscles of the calf of the leg. The only way to relieve it without operation is to put a steel sole under the foot, and pressure-pad on the instep. This will in many cases effect a gradual cure.

"HOUSE-MAID'S KNEE." This is a peculiar swelling of the knee just at the point where the knee rests upon the floor when kneeling. It is caused by continued kneeling while scrubbing, and hence its name. It is an inflammation of the *bursa,* and requires surgical treatment. Applications do no good.

HYDROCELE. This is dropsy of the testes, is not uncommon, and requires surgical treatment for complete cure, though it may be tapped and the fluid drawn off occasionally, for the sake of relieving the burden.

HYSTERICAL CONDITIONS. Hysterical conditions sometimes follow injuries very much as delirium tremens may in the alcoholic subject. It is more likely to happen, of course, in a person previously inclined to be hysterical. Excessive fright at the time of the injury is said to be more apt to produce it. The rest cure with complete isolation is best.

INFLAMMATION. The entire subject of inflammation would be interesting, but would require a great many pages and would lead us into depths to which the reader is doubtless unaccustomed, so that we shall content ourselves with only those points which are essential to the understanding of inflammations for the purpose of home treatment.

Of a simple inflammation, such for instance as follows a bruise or sprain, the symptoms are *redness, swelling, heat* and *pain.* Of course it occurs in all degrees, and the treatment must depend upon the amount of it. If severe, rest of the injured part or limb is one of the essentials of speedy cure. There is always a question as to whether it is better to apply *heat* or *cold* to an acute swelling. Probably if at the very start, cold will keep down the swelling best, but it must be *continuous.* The interrupted application of cold will be worse than none, for the congestion increases when the cold is taken off. Heat will generally be more grateful. It will not keep the swelling down but it will relieve the pain by relaxing the tissues. The old plan of putting on *leeches* may help to relieve the pain if the congestion or swelling is

very great, by drawing some of the blood and relieving the tension of the tissues.

Turpentine One of the Best Remedies

Pure *turpentine* is one of the best remedies, poured on but not covered with anything, so that it will not sting. *Elevation* of the inflamed part, by putting the limb on a chair, etc., will help very much by diminishing the congestion. Never poultice such parts. A *hot douche* serves a double purpose by relieving the pain and at the same time acting as a counter-irritant in diminishing the deeper congestion. Pour the water on hot and let it run off keeping this up pretty constantly for one or two hours, or more.

In an acute inflammation, the lead-and-opium wash is a valuable application for those situations where it can be used. In sprains and bruises it is the remedy, *par excellence,* and should be put on hot.

Simple inflammation, such as has just been described, is seldom or never dangerous. The system will soon absorb the products when the inflammation subsides, and the tissues will return to normal.

Infected Inflammations

But when some form of germs has gained access to the tissues it is a far different matter. The whole process and its results are apt to be profoundly modified, and this modification will take shape in accordance with the special character of the germs admitted. Some kinds will be extremely dangerous, others less so.

In an infected inflammation the great thing necessary is to get rid of the poison if it can be done. We do this by disinfecting the wound or sore which is the

source. If this cannot be done, we are left with the only alternative, often an altogether hopeless one, of stimulating the system against the infection.

When the Phagocytes are Victorious

In this we are assisted (or rather *we do the assisting),* by billions of "phagocytes" or white blood-corpuscles which rally to the aid of the tissues and attack, destroy, and swallow up (or swallow and *then* destroy), the rapidly multiplying horde of infecting germs. Sometimes the attacking party is happily devoured; but too often they are victorious in the wonderful "battle of the cells" and when they are, the person must succumb. Some one, I believe it was Metchnikoff, observed that sometimes *live* germs, or their spores, were to be found in the *dead* phagocytes, showing that the germ had conquered even after being swallowed, or *enveloped,* which is the way they do their swallowing. The moral of all this is: First, to keep free from infection. Secondly, we are guided in the use of stimulants to the selection of those which increase the number of phagocytes. External remedies are sometimes best for this, such as the cold bath, the cold pack, or better still in some cases, the hot pack.

Inflammation of Antrum of Highmore. Within the upper jaw, that is, in the cheek bone, is a hollow, called the *Cave,* or *Antrum of Highmore.* It is important because it sometimes becomes inflamed and filled with pus, the inflammation extending from the upper passages of the nose. The face swells up and becomes very painful. There is usually the his-

tory of a "cold" or considerable exposure to cold winds, preceding. The best treatment is dry hot flannels, kept constantly on the face, keeping the body warm, and lying as much as possible on the affected side. Blistering the cheek does no good.

INSTRUMENTS, DISINFECTION OF. It is worth while for every one to know how the surgeon accomplishes his purpose of absolute cleanliness. Not only his dressings, his hands, but his instruments, also must be *surgically*, which means *absolutely*, clean. The simplest way to prepare the instruments for aseptic work is to *boil* them. They are made with metal handles for this reason. Fifteen minutes' vigorous boiling will destroy the germs and their spores, and completely sterilize any instruments or vessels. The dressings are previously sterilized by dry heat or high-pressure steam. He disinfects his hands, not completely, so that in critical operations sterilized rubber gloves are worn, but to a fair degree by scrubbing them with brush and hot water and soap, then washing them in the disinfectant solutions. Careful cleansing of the finger-nails is important.

IRRIGATION OF WOUNDS. When the surgeon wishes to wash out a wound he usually allows the water to run in and run out, that is, without using any violence toward the delicate tissues. And this is a most excellent plan to adopt in home treatment, not to scrub the wound, but merely to *irrigate* it with the antiseptic solution. Then no harm can be done.

JAWS. Jaws receive their most frequent injuries

through the teeth. The alveolar process, into or out of which the teeth grow, being of cancellous tissue, is very subject to infection. It is this alveolar process which is sometimes splintered off in pulling a tooth, and then the dentist gets the credit of breaking the jaw. Treatment of injuries to the jaw is on the same principles as that for other parts.

KNEE JOINT. Naturally this is subject to a great variety of injuries (see Synovitis, and Sprains). The ligaments which enter into the formation of the joint are strong, but the synovial membrane is delicate. Tubercular inflammation of the knee-joint has been referred to as "white swelling."

KNOCK-KNEE. Knock-knee is the result of stretching or over-growth of the ligaments on the inside of the knee, and of enlargement of the internal condyle. The real cause is rickets. The disease usually begins to show itself early, as the child grows, becoming more and more marked. The beginning is the easiest and best time to cure it, and this can be done as simply and as readily as it can in bow-legs, the opposite of knock-knee. Light and slightly yielding splints can be so adjusted as to gradually bring the legs into the straight position. It is enough to give them a good start, and then nature will do the rest. Make the splint the whole length of the leg, pad it well, especially at the ends, and strap it to the outside of the leg, using first, strips a couple of inches wide of rubber adhesive plaster, in order to keep the splints in place, then put on the roller bandages, not too tight

at first, but gently, and then later make them tighter. Anyone can cure knock-knee in this way, and not hurt the child. A grown person requires more rigid drawing by the splints, and perhaps an operation.

LACERATED WOUNDS. See *Cuts, Open Wounds, etc.*

LIGAMENTS. Ligaments are the main stays of the joints. Those of the knee, the ankle, and back, or loins, are the ones most in evidence, because most often injured in sprains. They always go from one bone to the other in the joint, and it is they that, with the capsule, hold the joint together. (See Sprains.)

LIGHTNING-STROKE. Lightning-stroke results in *shock*, and *burns*. Treatment of both conditions is described elsewhere.

LOCK-JAW. See *Tetanus*.

"LUMPY JAW." Lumpy jaw has only recently been discovered to be an infectious disease. It is caused by actinomycoces, or ray fungus, is found among cattle and other herbivorous animals, but also in man. The infection seems to be derived by eating foods contaminated by the ray fungus.

At first only a hard lump appears, usually in the jaw of man as well as of animals. The lump is not painful and does not grow fast. It does grow, however, and after some time ulceration sets in and then it grows faster. At this time also it begins to show its malignant character. Neighboring lymphatic glands begin to be enlarged, fever and other signs of infection appear, and it is found that the tumor is beginning to set up other tumors of the kind in other

parts of the body. From this on its progress is rapid, and the victims soon fall before it.

The only possible way to cure lumpy jaw is to discern early its true character, and cut it out before it begins to ulcerate and spread.

Domestic animals should be immediately destroyed when found affected in this way.

LYMPH-CURE. The Roberts-Hawley Company, of Chicago, have demonstrated a very important fact in connection with the cure of certain diseases which depend upon degeneration of the tissue cells, namely, that it is possible to supply to the system in the form of medicine, vital or *vitalizing* elements of cell-life. The lymp, which they use is taken from the glands of perfectly healthy animals, and is therefore free from danger. The remedies are in form to be given hypodermically in very severe cases, and also by the stomach in other cases. They are specially adapted to chronic broken-down nerve and tissue states, and in cases where the nourishment of the body is impaired. They are obtainable only through a physician.

MALIGNANT DISEASE. We say a disease is malignant when it is rapidly fatal and accomplishes the destruction of its victim by poisoning his system. Certain types of diphtheria, of typhoid, of scarlatina, and of cerebro-spinal meningitis are of this class. They seem to be of such acutely infectious nature that they overwhelm the system, before medical aid can be of any avail. The antitoxin treatment will be the only sort

of remedy that will ever overcome such an attack, and then it must be used early.

MALIGNANT TUMORS. These have the same deadly character, but are not so rapid. They have also the property of developing other tumors in other parts of the body, and of their own kind. The only remedy against them thus far discovered is early excision. They are, broadly speaking, *cancer* and *sarcoma*. The first is also called carcinoma. Epithelioma is of this class.

MASSAGE. This is an important aid in the treatment of chronic inflammations. Thorough and persistent rubbing helps to promote the absorption of inflammatory products, and to renew vitality and circulation to the part.

MASTOID DISEASE. Mastoid disease is an inflammation of the lining membrane of the mastoid cells in the protuberance just behind the ear. It comes from exposure to cold, and extension of inflammation of the middle ear. It is often fatal. The treatment requires a surgeon.

METASTATIC ABSCESSES. Metastatic abscesses and tumors are those set up in other parts of the body, as described above, and are characteristic of malignancy.

MICROBES. See *Index*.

MINOR SURGERY. This comprises dressing of lesser wounds, opening abscesses, amputation of fingers, and toes, etc. Much of it could be done and well done in the home, provided those attempting it would inform themselves on the principles of sepsis and

asepsis, and would follow the simple directions laid down in this book. Most emergencies are of this class, and such aid at hand would save much suffering.

MIXED INFECTION. When we speak of infective processes and infected wounds we do not desire to be understood as saying that each such case has one definite kind of infection and one only. Perhaps the infected wound containing only one variety of germs never occurs. Usually several, and sometimes many kinds of germs are to be found in the same wound, and as in some cases of septic tonsilitis, the absorption and effects of each on the system causes diverse symptoms. In such cases we call it a "mixed infection" and use the remedies directed to its worst features.

MOTHER'S MARK. See *Birthmarks.*

NAILS. See *Ingrowing Nails.*

NECK, BREAKING THE. Of course no bones in the neck are broken, for they are all jointed. What is meant by the expression is that the "odontoid," or tooth-like process of the "axis" or second bone of the neck, counting from the head downward, is wrenched out of its position. In that event the action of the ligaments and muscles attached to it jerk it suddenly upward again, and this process is driven into the respiratory center at the base of the brain, producing sudden death. The effect is the same as "pithing," the method formerly used by Mexicans to slaughter cattle.

Hanging, properly done, causes death in the same

way, the neck being "broken" by the jerk the body sustains when the end of the rope is reached, and in this way is sudden and therefore less inhuman.

NOSE, BROKEN. A very ingenious method is now in use of restoring a broken and disfigured nose, by injecting sterilized paraffin into the tissues to crowd out the sunken places and straighten the member up. It is astonishing how much the appearance can be improved, and that without discomfort or harm, when a sunken spot at the bridge of the nose, or anywhere about the jaw, is thus leveled up.

PLASTER OF PARIS BANDAGE. This is easily made and would often be useful for home treatment. After the first two or three days of a sprain, for instance, when the swelling has had time to go down, it can be applied and the limb restored to immediate use. The same also after a broken bone has had time to set, but is still too weak to use.

This bandage is made by rolling strips of the desired width of crinoline into an ordinary roll, and at the same time freely sprinkling the powder plaster on as it is rolled. For use, let it soak in warm water until bubbles of air cease to rise, then apply before it sets, plastering it over carefully as the bandaging progresses.

POULTICES. The conditions in which poultices are of use in surgery are rare indeed. See *Index*.

PUS. Pus may be formed wherever the watery and cellular elements of the blood are poured out in inflammation. There is such a thing as un-infected or non-

poisonous pus. It has been called "sanious pus" and "laudable pus." But when pus ("matter"), becomes *infected,* as it does always on exposure to the air, then it becomes dangerous as respects its ability to act as a poison on the system. For this reason an abscess had better not be opened at all unless it is to be thoroughly disinfected and cleansed.

REPAIR. The process of repair after injury or surgical disease is an interesting one. Indeed one interpretation of the various phenomena of simple inflammation is that it is merely the effort of the part of the system to make the necessary repairs. To this end the circulation supplies an increased amount of blood (congestion); this blood pours out its phagocytes and leucocytes and disinfecting watery element (the blood-plasma), which increases the *size* of the part (swelling); and the activities going on in these efforts develop additional heat (fever). The *pain* is incidental to the stretch which the congestion puts upon the tissues.

In the repair of bone tissue a callous is thrown out by the system to take the place of bone until a new bone can be built up. Even two kinds of callous are employed, the first a "provisional" callous for immediate use, the second more permanent, which remains till it is possible for the bony or fibrous union to grow complete.

REST. Rest of the part, so often referred to and advised in the treatment of surgical conditions, is for the purpose of permitting just these changes to take place.

Experience has shown that they do better when the limb or part is allowed perfect rest.

SINUSES. I have already spoken of "pockets" which may form in the healing of an abscess, or in a suppurating process, and the way we try to avoid them by packing the abscess with gauze, and by thorough cleaning out any small side-divisions. When they do form we call them sinuses. They always contain pus, and must be opened up the same as any abscess.

SLOUGHS. This is a name we apply to decaying fragments of tissues when they are breaking down in the formation of abscesses or ulcers. By packing with gauze, and especially gauze saturated with the *essence of pepsin* to dissolve out all the dead tissues, we get rid of them, and new tissue is quickly built up to take their places.

TAPPING. Tapping of a cyst or dropsical effusion is not generally satisfactory, except in the chest or pleural cavity, on account of the liability of the fluid to recur. It is almost sure to recur in hydrocele, where no pressure can be used. In tumors, and in the pleural cavity, where pressure can be applied after tapping, it is of some use.

TRUSS. When there is rupture it is not safe to go without a truss, while standing or moving about. It can be removed while lying down, provided it is put on again before getting out of bed. The test of its proper fit, which is of the greatest importance, is whether or not it permits the intestine or omentum to come down in any possible position, or during any

kind of exertion. If it does, it should be discarded as not being a good fit.

ULCERS. "Ulcers," "fever-sores," "sore-leg," etc., are of such common occurrence, are so often allowed to hang on for years, and yet are so readily curable, that I must speak of them.

There are several kinds, all depending upon lowered vitality of the flesh, or of the parts affected. Those of the *anus* are usually syphilitic. The iodide of potash internally, and strong nearly pure applications of carbolic acid externally will be required. The iodide should be taken as already recommended.

Ulcers of the *eye* are painful, and cause the whole eye to redden, and the head to ache. A few applications of the following ointment will often cure it; yellow oxide of mercury, three grains; lanoline half an ounce. Rub together well and put a little in the eye twice a day.

Ulcers of the Leg

Ulcers of the *leg* are almost always caused by a varicose condition of the blood-vessels of the limb, whether they appear to be enlarged or not. These are the ones we often hear called "fever-sores," although they have not, and never did have anything to do with a fever. The leg, in the debilitated subject, is often inflamed and enlarged for a considerable area about the ulcer. But no matter if it is, except that the cure will take longer. The main feature of the proper treatment of an ulcer of the leg or ankle is *bandaging*. This may seem very strange, but experience shows it to be true. Those capillaries and veins must

be supported, and the only way to secure that is by a bandage applied snugly, just like the skin ought to be, firmly everywhere—tight nowhere. A good *roller* bandage (one rolled as previously directed), about two inches wide and five to ten yards long, is absolutely necessary. Then a good salve, which will do two things: it will cleanse and keep clean the ulcer, and will keep the dressings from sticking.

To Make the Ulcer Active

If the ulcer looks pale and sluggish, and does not throw off rapidly the crusts and scabs which want to form around it, use a stimulating salve made of one part balsam of Peru in six parts vaseline (or plain gauze saturated with the pure balsam of Peru), for a day or two until the ulcer begins to look bright and active. Then change to a more soothing salve such as one made of one part boric acid and nine parts vaseline. The dressings for such an ulcer are always to be *gauze,* plain or sterilized, or any one of the medicated gauzes sold at the drug store. Cotton must not be used, as it does not soak up the discharges as well as gauze does. Pack the ulcer full of the gauze, place another thick pad of gauze over it, then wrap the bandage around the whole limb, beginning at the toes in order to not interfere with circulation, and continuing clear to the knee. The dressings should be renewed daily.

Most Ulcers of the Leg Curable

I have seen many swollen legs, those enlarged to twice their size by the infiltration which very naturally surrounds such an ulcer of the leg or ankle, but I have never seen an incurable one, except those which

were malignant, and most of them yield readily to the treatment here laid down, and which is perfectly practicable for home use, provided the user is intelligent and careful to follow directions. The greatest difficulty will be, of course, the putting on the bandages, but that comes with careful practice. See, cuts for illustrations of bandaging.

Ulcers of the Mouth and Throat

Ulcers of the *mouth* and *throat* are often best treated with a light application, to begin with, of pure carbolic acid. Touch the ulcer with the acid on any kind of an applicator until the surface turns a little white, which will be immediately. This destroys any infection, but not enough of the healthy tissue to be of any disadvantage. It also relieves the pain. There is nothing better to use in the familiar "canker sore mouth," which *is* an ulcer of the mucous membrane. For the latter no other treatment is needed, but for the deeper ulcer an antiseptic throat wash such as elsewhere directed, will complete the cure.

PART XIII
HOUSEHOLD REMEDIES

"You ask me how this traffic in health and lives can be stopped. It can never be wholly stopped until all human beings become logical in their actions, and cease to be attracted by things that are secret, simply because they are mysterious."—DR. DAVID L. EDSALL, *Professor of Medicine, University of Pennsylvania on Patent and Proprietary Medicines.*

PART XIII

HOUSEHOLD REMEDIES

I PURPOSE in this section to render the people a special and necessary service. The question arises almost daily in every home, What can we do, and do *safely* for this or that trivial injury or ailment, which does not seem severe enough to make it necessary to call a doctor? Unfortunately there are some who fancy that they can rely upon this or that proprietary or "patent medicine" either because it is claimed in the advertisements that it will cure everything, or because they happen to know some person who thinks it has cured him. All such concoctions or mixtures are "made to sell" as the manufacturers will freely admit to their confidential friends, and the reason that all sorts of claims are advanced for them is that the wider the sale of the mixtures the bigger their profits will be.

Some Facts About Patent Medicines

The writer has no remedies to sell, and his purpose is to warn well-meaning people against being too "easy." *You* are so thoroughly honest that you are not willing to believe that men can be so eager for wealth as to knowingly deceive the public in a matter of such immense importance as those things which concern the health and even the life of some one. But see how ridiculous their claims are! You would often

be convinced if you believed everything you read that at last the *great remedy* has been discovered which will cure all the ills that flesh is heir to. I want to say this in this connection, that the patent medicine manufacturers have no secrets which are not known to the medical profession and to science generally. It is only their flaunting and unscrupulous *claims* of the universal application of some remedy, which the medical profession knows to be a false claim, but which the sellers in their greed are ready to blazon forth, backed up by an array of fake "testimonials." And about these so-called testimonials—at considerable pains a large number of them have been traced to their supposed origin and have been found to be attributed to persons who never existed. It is a safe guess that for every genuine testimonial there are published dozens which are pure fakes.

The practice of medicine and surgery would not be difficult if cures were always as simple and easily accomplished as these sellers of patent nostrums would have you believe.

A Principle of the Medical Profession

Are you, reader, aware of the fact that a member of the medical profession stands always ready to give to the world entirely *free* any discovery of his, of either remedy or device or truth—*anything* that makes for the welfare of humanity? That is one of the principles which makes the profession of medicine the noble profession that it is. He would not be allowed by the ethics of his profession to patent or to sell for his own profit, even if he desired to do so, any

discovery of his own which concerns the health of the human race. Any doctor who did this would forfeit his standing in the medical society.

An Amusing Impression

It is possibly out of this fact that some people have received the amusing impression that a doctor is compelled by law to go wherever and whenever he is called whether the people are in the habit of paying their doctor's bill or not. Such a law would be ridiculous. The facts are that no one appreciates more deeply than the physician does the direful misfortune and dangers of sickness, and out of the goodness of his heart and sympathy for the suffering ones, who are not always themselves to blame, he often *does* go, repeatedly, when he knows he will never be paid for doing so. Sometimes, most unfortunately, his only reward is in the shape of fault-finding and adverse criticism on the part of people who suspect that because they do not pay him he is blaming them.

The one question that will so often arise in the home, and the one for which it is most difficult to formulate a general answer, is, Should I send for my physician in this case, or is it safe to await developments and see if it will not come out all right? Such questions are apt to disturb the anxious mother when the comfort and well-being of her child are at stake, feeling as she does that the child is not able to tell just what is the matter with it. This always complicates the situation.

The only general rule which can be laid down here

Call the Doctor Promptly

and at this time is that one should always be certain to err, if at all, on the *safe side.* Much of suffering, not to mention expense, can often be avoided by having the doctor come before the disease has gained so much headway that a long and up-hill pull will have to be made for the life. Remember that in sickness the doctor is your *true* friend, that is, that his sole purpose and effort is to get the sick one well with as little expense and danger incurred as possible. *He* is not looking for a long "job."

Another rule, rather more definite, is that most (but not all), of the severest kinds of disease are usually ushered in by some pronounced symptom as either a severe chill, or prostration (great weakness), or a high fever, or rapid and weak pulse or breathing, or severe vomiting, or marked tremors or trembling, or some such evidence that the system is being overwhelmed. In that case there should be no doubt whatever that the physician must be summoned without delay. But in the milder attacks, when none of the symptoms just mentioned arise, even then one must be on the lookout, and remember that to be on the safe side is real economy.

The Medical Profession Humanity's Army

In the presence of an *epidemic* of any one of the contagious or infectious diseases the householder must especially be on guard, for exposures and attacks which result fatally may and of course often are avoided by timely precautions under the doctor's orders. It would be well indeed if every family would open their eyes to the great truth that the med-

ical profession is humanity's mighty standing army, whose duty and in very truth whose accomplishment in a thousand death-dealing epidemics, is and has been to ward off the conquering and enslaving hosts of loathsome disease and death. It is really astonishing that in this day and age of the world there can still be found a few persons who are so shortsighted as to be ready to *conceal* rather than to report to their physician a case of contagious disease in the house. By all means, report at once the presence of even the slightest suspicion of a contagious disease, and let the physician take the responsibility of protecting other people against the danger of contracting it. This precaution may also protect those of your own household.

Not on a Money Basis

The readiness with which physicians and surgeons always treat perfectly free those who are not able to pay for their services, and the faithful way in which they invariably maintain their high standard of skill in giving such service, ought to be an earnest of sufficient guaranty to every one that the practice of medicine and surgery is not conducted merely on a *money* basis. Here is one, but only one, of the great differences between the medical profession and the quacks or patent medicine sellers. Physicians treat also the families of one another, as they treat each other, entirely free or complimentary, which again has given rise to the amusing assumption on the part of a few good people that there is a law compelling them to do so. It is done so frequently that some have mistaken

it for a requirement of law. If one farmer were to plow another's field, or to harvest his crop, gratis, the deed would be heralded far and wide, but little notice is taken of these generous deeds of the medical profession. My plea is that the people may recognize the unselfish motives and customs of the doctor, and accord to him the confidence, and the belief in his unselfishness that these customs and practices deserve.

The Right Thing Rightly Done at the Right Time

But while the physician's presence at times in every home is absolutely essential to the welfare of its inmates, and while those who have in charge the household affairs should never needlessly nor heedlessly assume responsibilities better delegated to the medical attendant, yet in the *trifling* ailments and injuries occurring any day so much is gained by *knowing how*, and so much suffering and real danger is avoided by the right thing rightly done at the right time, that it will be well worth the while of all of us, people and physicians alike, that correct knowledge be acquired as far as possible by the ones who most need it. With this single purpose in view it is proposed to open the door, and give to the members of the household, most of whom are or will later become responsible for the health of others besides themselves, a "working knowledge" of the uses and effects of those remedies which can appropriately be kept and used *in the home.*

Great Care Needed in Use of Drugs

One item of the service to be rendered is to strongly advise against the keeping on hand of such remedies as *cannot* be safely used except by those who possess

a thorough knowledge of *all* their effects. That person who uses drugs with the effects of which he is not thoroughly acquainted is, in plain words, *fooling with fire*, and many such get burned. We of the medical profession often meet with persons showing the effects of drugs, who have perhaps taken them under the guise of patent medicines, and who never suspect that they are suffering from so-called remedies wrongly used. It is equally true that people sometimes use and give to their children more of a drug than is good for them, not knowing its effects and therefore not being awake to signs of danger.

There are many remedies safe and suitable for household use, yet quite sufficiently effective for all household needs. Much can be gained by a better understanding of these and a more accurate knowledge of how to use them.

Information Needed by the Public

The writer believes it to be the duty of the medical profession (and with this idea leading physicians everywhere agree), to give to the public this knowledge. The purpose is to both serve the public and to make the doctor's work easier. These remedies are, more definitely speaking, the means used for temporary relief in injury or sickness; and to prevent the spread of contagion or infection in the communicable diseases. Also those that may be used "until the doctor comes," or in trivial disorders in which no physician is needed. For convenience of ready reference these will be named as nearly as practicable in alphabetical order.

Times for Taking Medicines

When the doctor's directions say: "Take a dose every two hours," or "every four hours," or "before meals," or "after meals," they are based upon a knowledge of how long the effect of the drug lasts, and whether best taken on an empty or a full stomach. His directions should therefore be observed rigidly. For instance, any fat, such as cod-liver oil, is given a half-hour to an hour after meals because the digestion of fats is most active at that time, and taken then it is less likely to disagree with a sensitive stomach. Directions are always given, or should be, with great care, and are always based upon some good reason. The doctor concludes that a remedy is "indicated" when he finds evidence of a condition which points to the fact that such a remedy is needed.

Two-fold Effects of Medicines

It must be remembered also that some drugs have a two-fold, and some even a wider action, and that the effect of a medicine is often determined by the *size* of the dose. There is no drug, for example, which in small doses acts as an *expectorant*, which does not in larger doses act as an *emetic*. That is, the small dose will loosen your cough, while the larger dose will make you vomit. Also, almost but not all of the drugs which in small doses produce *sweating* will, in large doses, cause vomiting.

Age, as Affecting the Size of the Dose to be Given

How may I know how large a dose of medicine to give the child? The directions will generally be plain and definite, but if for any reason they are not, or have been forgotten, a fairly good idea may be arrived at by taking the proportion of either the age

or the weight of the child to that of an adult. Here, again it is always best to be on the safe side, and to remember especially that all mixtures containing opium or paregoric will affect a young child out of all proportion to its influence upon the adult. Sometimes cough mixtures are made, and more especially those sold as patent medicines, such as Dr. So-and-So's cough syrup, and Mother Winmoney's soothing syrup, which contain opiates in too large proportions to be safe. I have often found my little patient at my first visit suffering from an over-dose of such so-called home remedies. I would strongly advise parents to never permit the use of them in their homes.

ALCOHOL. This is not the useful remedy that many suppose it to be. It is nevertheless used for so many other things besides medicine in the home that everyone ought to know its uses. Neither alcohol nor whiskey are now so generally relied upon for use as stimulants in cases of sudden prostration as in fainting or "shock" from injury as they used to be. It is universally conceded, however, that alcohol is a germicide, and a reliable antiseptic with which one may wash and cleanse a wound. Alcohol diluted, that is, mixed with water in the proportion of about one part alcohol to ten parts water, may safely be used for this purpose.

ALCOHOL, DENATURED. This is rather a misnomer or false name, as nothing whatever is *taken from* the spirits. On the other hand, substances are *added*

which add to its distastefulness in order that it may not be used as a drink, or in making drinks. The object is to permit the manufacture of spirits upon which the Government may not feel its sublime necessity of imposing a tax, as long as it can be reasonably certain that such spirit is to be used in manufacturing and other industrial pursuits and in the arts only.

Denatured alcohol is made just like any other kind of grain or starch alcohol, except possibly that it is not so carefully distilled, and then some other substance is added to it. Wood alcohol, turpentine, benzole or naphtha, pyridin and sulphuric acid are the products or chemicals most used to render the grain alcohol less drinkable and thus make denatured alcohol out of it. When so mixed by the addition of some one or more of the foregoing liquids it is admitted duty-free or is allowed to be sold without tax when manufactured in this country. It is also called "industrial alcohol." In Germany potatoes are largely used in the manufacture of denatured alcohol because they contain the starch in its cheapest form, but in this country molasses from the sugar-houses, grains, etc., are fermented, in which process the sugar is converted into alcohol.

ALCOHOL, WOOD. This is a far different drug, and its use or effect must not be confounded with that of alcohol of the common kind which is made from grain or starch. *Wood alcohol* is made by distillation from woods, birch, beech, etc. It is a *violent poison.* Indeed it is said to be sometimes used with criminal

intent for the "knock-out drops" that we hear of. Even in small quantities when taken for any length of time it is very injurious. It appears to have a special effect on the optic nerve. Persons who have taken it have gone almost suddenly and incurably blind. Wood alcohol has been found as an adulterant in the essence of Jamaica ginger, which is therefore not always safe. It is not a safe drug to have about the house on account of its power to kill in very ordinary amounts. On account of its cheapness it is used for burning in lamps, but should always be covered with a red label and skull and cross-bones (the universal poison sign), so that all persons might be warned of its danger.

ALMOND MEAL is one of the most valuable of sedatives for the skin. When applied in a finely powdered state or made up into an ointment it keeps the skin soft and smooth.

ALMOND OIL. This differs from the oil of bitter almonds in being non-poisonous. It contains no hydrocyanic acid. It is therefore the one used in making almond meal, and in baking.

For removing tarnish and rusty spots from silver, from steel instruments, knives and forks, and for brightening or keeping bright any kind of instruments: Take, oil of sweet almonds, four parts, alcohol one part. Mix.

ALUM. This drug so often used in the home is not so essential, as there are other drugs better for the purpose for which it is used. For touching the sore in

a case of canker sore mouth pure creosote is better, or even pure carbolic acid. The application of either is made delicately by dipping a wooden toothpick or splinter into the acid and touching it to the spot. No harm can come from this careful use of the acid, and it quickly cures a painful condition. Burnt alum is simply the alum dried. It is used as a caustic, even in some homes, but there are other applications which do better. It is decidedly a question whether anyone in the home should undertake to apply a caustic.

AMMONIA. The cleansing uses of ammonia are too well known for comment. There are several mixtures of ammonia of different strength and having different names. The strongest is that called Aqua Ammonia Fortior, or Stronger Ammonia, or Concentrated Ammonia. It is too strong to be kept in the house with safety.

Hartshorn, as popularly called, or was in the old-fashioned days, is the *aqua ammonia*, or water of ammonia. It is a trifle less than one-third the strength of the stronger ammonia, and is the kind sold under the plain name of ammonia. It is a powerful stimulant, though its effect is very transient and quickly passes away. When a person even inhales the fumes of *aqua ammonia* the immediate effect is to stimulate both his heart and his breathing. But the most apparent effect is to irritate the respiratory passages, so that the person is likely to gasp as if for breath. Applied to the skin it is a pronounced irritant, and is for that reason used in many liniments. The regu-

lar ammonia liniment or "white liniment" in common use is made of *aqua ammonia* thirty parts and cotton-seed oil seventy parts.

The aromatic spirits of ammonia is used when ammonia is desired for internal administration. The usual dose for home use is rather less than half a teaspoonful. It is very volatile, the effect passing off quickly. The dose may therefore be repeated in ten or fifteen minutes if needed. In heart failure, in fainting, or in collapse from any cause, or whenever a quick and active yet perfectly safe stimulant is needed it is one of the best we have which may be in the hands of home users. Ammonia is an important ingredient of most all of the "smelling salts" on account of its stimulating effect on the organs of respiration. Keep the bottle tightly corked.

ARISTOL. This is an iodide of thymol which is extremely useful for the purpose of dusting into a fresh cut or an open sore with offensive or too free discharges. It has an agreeable odor, for which reason it is much prefered to iodoform, and is more strongly antiseptic than boracic acid, so that it is better even for home use. The wound should first be thoroughly cleansed with boiled water (sterilized), and then the powder may be dusted into the wound and left there till the wound heals, if no appearance of inflammation arises. This treatment is well adapted to those smaller cuts and open wounds so often cared for by members of the household without calling a physician. The powder forms a gummy protection for the wound and

at the same time disinfects it. It must be kept in a colored bottle and not left open to the light.

ARNICA is an oldtime household remedy. The tincture is used to rub on sprains and bruises indiscriminately. It should be remembered, however, that arnica is a strong irritant, and is therefore not good in fresh bruises. It is to some degree useful in old and chronic inflammation when applied locally. Hot fomentations of arnica flowers are better adapted for home use in such cases, or the tincture may be used to paint the surface in the same way as iodine is sometimes used.

AROMATIC SYRUP OF RHUBARB. See *Rhubarb.*

BAKING SODA. This is made by drying all the water out of the commercial carbonate of soda. It is not fully saturated with carbonic acid. The ordinary bicarbonate of soda (baking soda), is pure. Its use is always for the sake of an alkali. It has no other particular effect on the system.

In *acid dyspepsia* the dose of baking soda must be large in order to get any good from it, at least ten to twenty grains for the adult. This, however, affords only temporary relief, and if the trouble continues it is better to seek the advice of a physician. Baking soda is very useful to prevent *griping* when it is taken with any kind of cathartic which has that disagreeable effect. It is often used for burns as a local application, but its efficacy to stop the pain is very doubtful. For stings and poisons also its benefit is very questionable. In *hives*, and very many kinds of

itching inflammations of the skin the alkaline effect is good. It can be applied very freely dissolved in water either warm or cold for this purpose.

BALM OF GILEAD. It is still the fashion in many homes to make a healing salve of the swelling buds of this tree in the early spring. Manufacturing chemists use it mostly as an ingredient in cough mixtures. A syrup can be made of the buds by soaking them in an equal quantity of whiskey or alcohol for several days and then straining off and adding an equal quantity of syrup or honey. It may sometimes be sufficient in mild attacks of a dry and irritating cough, such as may follow la grippe, or in mild bronchitis where a physician's advice is not to be had. The salve mentioned is made by melting the buds with an equal amount of mutton or beef tallow.

BALSAM OF FIR. This is one of the few remedies that can be better obtained in some parts of the country than in town. The balsam occurs in blisters on the bark of bushes and the young tree. It is taken pure by sucking the balsam out of these blisters. It is claimed to be most effective in stubborn attacks of chronic bronchitis and "winter cough." One thing is true, namely, that the afflicted person who goes out to the woods in search of it will with proper precautions derive much benefit from the open air search. It may be taken quite freely without fear of injury.

Effective Dressing for Fresh Wounds

This balsam also makes a most effective dressing for fresh and uninfected wounds. Its chief good, however, is as a dressing for *fissured* or *cracked nip-*

ples of nursing mothers. First disinfect the nipple with a cleansing wash, then dry it thoroughly. Apply a previously-warmed globule of the balsam to the fissure plastering it in well with a wooden splinter or toothpick. If well put on or into the fissure the balsam will not come off at the next nursing. This is its chief advantage, for it is difficult to get anything to stay on long enough to allow the fissure to heal. No harm will result from the child's swallowing the balsam, if that should happen. If the balsam should become loose let it be applied again in the same way. Any one who has witnessed the agony caused by sore nipples will appreciate the effects of the remedy.

BARLEY-WATER is a useful home remedy. When the mucous membrane lining the stomach or throat is inflamed, barley-water makes a most grateful demulcent and a slightly nutritious drink. It contains both starch and mucilage. According to the United States Pharmacopeia it should be made as follows: "Take of ordinary barley two troy ounces; water a sufficient quantity. Having washed away the extraneous matters which adhere to the barley, boil it with half a pint of water for a short time, and throw away the resulting liquid. Then, having poured on it four pints of boiling water, boil down to two pints and strain."

BLACKBERRY ROOT. A syrup or a wine of blackberry root is often made for home use when an occasional astringent tonic is needed as in diarrhea. I mention the practice rather to condemn it, however, for it is

not safe to try to cure a diarrhea in that way. It is not well to try and bind up the bowels when they are resorting to nature's way of getting rid of some obnoxious, and possibly poisonous, contents. See *Diarrhea.*

BLAUD'S PILLS. See *Iron Pills.*

BLEACHING POWDER. See *Chloride of Lime.*

BLUE MASS. This old-fashioned family physic is very seldom used now for the reason that for home use there are better things and a better way. It is well known that blue mass is a preparation of mercury. Mercury in that harsh and too energetic form has practically gone out of use. Even physicians seldom use it. Blue mass was never definite and certain in its action, for which reason perhaps too large doses of it were taken. These often did harm. The best way is to never use it at all. There is a milder and better preparation. See *Calomel.*

BLUE OINTMENT is the metal mercury rubbed up with suet and lard. Its only use at the hands of the laity is for rubbing on the skin to destroy certain kinds of skin parasites, notably the crab louse. Very little of it should be used, and often one application is enough.

BLUE VITRIOL; Blue stone; Sulphate of copper. When the iron, the usual impurity of this chemical, has been removed, the result is 99.5 per cent. pure copper sulphate.

It is used extensively among farmers, who sprinkle a solution of it on their seed wheat before sowing in order to prevent smut. It kills the fungus and makes

the grain less apt to contain it. While a four or five grain dose of copper sulphate will cause vomiting it is a very harsh remedy, and there are others much more effective and better every way.

BONESET OR EUPATORIUM, also called *thoroughwort,* or *Indian sage,* is the dried leaves or the flowering top of the plant. A tea made of it used to be a favorite household remedy for breaking up "colds," but it has a most disagreeable taste and is seldom used now. A hot tea made of it is very effective in producing sweating.

BORACIC ACID, usually and better called *boric acid,* is an exceedingly useful household remedy. It is not exactly the same as *borax,* but is a highly refined product, carefully crystallized and free from impurities such as borax, sulphates and metallic substances. The crystals are then powdered very fine, until it becomes what is called an "air-floated" powder, so that it can be dusted on sensitive skins or the most delicate mucous membranes. Powdered boric acid does not dissolve easily. It takes about twenty times as much water as there is of the powder to dissolve it. Hot water dissolves it more readily.

Special Uses of Boric Acid

Boric acid is not, strictly speaking, an antiseptic. At best it can be regarded as only a *detergent,* or a chemical which delays putrefaction and prevents multiplication of germs. Surgeons use a boric acid solution when they desire a very mild wash for a wound which has not already become infected, the purpose being to keep clean a wound which is already

so. Being very mild and not at all irritating it makes a good *eye-wash.* For this purpose dissolve about one heaping teaspoonful of boric acid in half a pint of hot water which has been boiled vigorously for ten minutes. The water itself has been sterilized by that time, and when allowed to cool the solution makes a most excellent wash for any kind of home use. If not all used at once keep in well-corked clean bottle.

Boric acid, when added to milk to preserve it, is hardly to be regarded as itself injurious in the amounts used, but the very fact that the milk requires a preservative shows that either it is too filthy to keep well or is too old for use. For this reason milk that contains boric acid should never be used, nor its sale permitted.

BORAX, also called *sodium borate,* and *sodium biborate,* is more freely soluble than boric acid. It is less refined, and is used very much in commerce and in the manufactories. In metallurgy its chief use is as a *flux,* that is, to make a metal melt more readily. Borax is found in nature incrusting the soil of certain marshes in California, and in the mines of Tuscany. There is also mineral, calcium borate, from which great quantities of borax are said to be made.

Borax is a great help in laundry work, intensifying the action of soap as it does, and adding to the crisp cleanness of the clothing. In bathing it helps the soap to cleanse the skin. It is one of the best and safest methods of killing *roaches,* or driving them away when scattered about their haunts.

In brazing or soldering the precious metals, borax is used first to remove any metallic oxides, also in the coarser metals it melts with the solder and cleanses the surface from oxides so the solder will adhere.

BRAN. The outer hull of wheat contains little or no nourishment, but is sometimes recommended as a laxative, or to cure chronic constipation. For this purpose it is eaten perfectly dry. The laxative effect is due partly to its bulk, but more especially to the irritating effect of the undigested particles. Indeed a large part of it remains undigested, and the irritating effect from this cause makes its use of doubtful advantage. It is quite possible that eating bran does one more harm than it does good, even if it does correct a sluggish state of the bowels. The irritant effect of undigested starch would certainly do harm. Its occasional use may not be so objectionable. Oatmeal is often advised for its laxative effect, but while more nutritious it is inclined to ferment readily, especially when made from oats grown in a warm climate. Unbolted flour and graham are equally useful as laxatives and less objectionable because less likely to ferment. All such cereal foods should be taken when for laxative purposes without too much liquids, that is, made thick or dry and eaten with little milk. Corn meal is also laxative and does not tend to ferment.

BROMIDES. The bromide of potash and of ammonia are remedies useful enough in the hands of a competent physician, but no one should ever undertake

to give them to any member of the family, or to take them, without the special direction of his physician. The bromides of sodium and of lithium are used in such conditions as rheumatism, and there is danger that those who are unacquainted with the effects of bromides may attempt to use them and do harm. They produce muscular weakness, and should never be given to any person in a weakened condition.

BRONCHIAL LOZENGES. These are made for home use and are useful in those very mild cases when there is merely a slight irritation or inflammation of the throat or bronchial tubes. They are to be held in the mouth until dissolved. Ask at any drug store for *Squibb's* lozenges.

BROWN MIXTURE LOZENGES, or tablets, are useful in bronchitis when it is acute and painful, yet not sufficiently severe to necessitate calling a physician. They also are made by Squibb, a reliable manufacturer. They are not secret or "patent" remedies, and it is a good deal better for a person who is not a physician to purchase and use this kind of a remedy than to get some advertised mixture that no one knows anything about. The one thing to be always on the look-out for is the severe disease that comes on in mild form, and therefore the person who resorts to this kind of a remedy in a supposedly mild attack must be on the alert to seek the aid of his physician if the trouble does not subside immediately. The tablets may be taken as often as one every two or three hours to relieve hoarseness and increase expectoration.

CAFFEINE is the alkaloid or active ingredient of coffee and of tea. A drug called the *citrate of caffeine* is made from either, chiefly from coffee, and this drug is a very useful heart and brain stimulant. The stimulating effect on the brain explains why tea and coffee so often prevent sleep, and also why their use sometimes relieves headache. The beneficial effect of tea and coffee when one is tired or weak from any cause is well known. It is a great deal safer and more sensible for one to take a cup of tea or coffee as a stimulant, when needed, than it is to resort to liquors of any kind. Alcoholic drinks at such times have not nearly the certain tonic effects that these have. The heat taken in with tea and coffee also is of some benefit. A hot drink is always stimulating to some slight extent. Caffeine is the most valuable ingredient of most of the headache powders.

COFFEE. Coffee contains, besides the alkaloid *caffeine* just mentioned, an empyreumatic oil to which is due its flavor. The alkaloid caffeine alone does not interfere with digestion as coffee often does. The harm that coffee does may be caused by the tannin it contains, or to the oil just mentioned, or to the way in which the coffee is taken. It is often necessary that a person confine himself to one cup of coffee a day, or leave it off altogether.

CALOMEL. The very large number and almost endless variety of nostrums used among families and by individuals for the purpose of securing action of, and "regulating" the bowels, is sufficient evidence of a

demand for some home remedy such as may be kept on hand and used when occasion requires, and without the necessity of applying to a physician for counsel and aid. Somebody's patent "tea," or syrup of something, or liver pills are altogether too often resorted to when they are not the sort of physic needed, but are chosen by mere guess.

Why We Object to Calomel

Calomel never was a physic, strictly speaking, and much of the trouble with it and prejudice against its use has arisen from supposing that it was, and resorting to it for that purpose. Calomel is first and foremost an *intestinal excitant,* or *agitator,* and secondly an antiseptic. It should never be taken by anyone in the large doses formerly given, and never without its being followed by an active physic. It is not my purpose to teach people all about calomel and its effects, but to guard them against its evil effects and to warn them against its misuse. The reason that calomel was formerly regarded as a physic is that, on account of its effect in stimulating *peristalsis* (the name given to the worm-like movements of the intestines by which they move their food contents onward), and also causing irritation and increased secretions of the bowels, the discharges were greatly increased. But it is not a physic in the sense that castor oil is, for example, or Epsom salts. The action of a physic is to sweep out the bowel, so to speak, and the object of giving a physic after calomel is to sweep out both the calomel, after the desired effect has been secured, and the bowel discharges excited by the calomel.

Proper Size of Dose

If calomel is ever taken at all without direct orders from the doctor it should be taken only in one-tenth-grain doses, repeated every hour until the bowels have moved or until ten such doses shall have been taken. Then let the last dose only be followed by the physic. In this way no salivation will ever occur, and the present prejudice against the use of calomel will soon pass away. Even children can take calomel in this sized doses without any fear or danger of harmful results, the rule of giving a physic always being followed. Castor oil is a good physic for the child in such case.

But calomel finds its best use only in those cases where there is a brown-coated tongue, a dull or yellow skin, a heavy head, and other such evidences of a sluggish liver. Especially is it useful when the stools are light-colored or "clayey," and when there is fermentation in the bowels with gas. It is well to take calomel only when one can be reasonably quiet, as the excited action of the bowels should not be aggravated by moving about.

Refrain from Eating

If this method of taking calomel is always followed no harm is likely to come even to those unskilled in its use. It is better to refrain from eating, so that the small doses may have better action. For home use, if such be desired, always get the tablets containing each one-tenth grain calomel and half a grain or one grain of soda, the soda being necessary to prevent griping. Follow strictly the above injunctions. The tablets may be crushed in a teaspoon of water

for giving to young children. Calomel usually makes one feel rather worse while taking it, on account of its agitating effect on the bowels, but the improvement next day is usually marked.

CAMPHOR. This old-time family drug has a distinctly stimulating and antispasmodic effect, and is good also to relieve pain and itching. The dose is ten to fifteen drops for internal use—half that amount for children. Locally applied camphor is stimulating, and when rubbed on "cold sores" newly appearing it dries them up nicely. There is no likelihood of harm from camphor, either when it is inhaled or taken internally.

CAMPHOR ICE is made of camphor, white wax, spermaceti, castor oil, carbolic acid, oil of bitter almonds and benzoic acid. It is a most valuable application for cracked lips, or chapped hands or lips, and as an application to relieve pain or itching. That made by Squibb & Sons is said to be best.

CAMPHORATED OIL is made of cottonseed oil and camphor, and is a favorite home remedy for rubbing on the chest in slight attacks of cold or croup. It should be applied hot, and covered with a flannel. It is not as active as goose-grease and turpentine, but is useful when a mild counter-irritant is needed.

CANNABIS INDICA, or Indian Hemp, comes from the East Indies. It is being so often mentioned, even in the newspapers, that it may be well to understand what it is, and what its effects are. It is the drug sometimes called by its native name, "hasheesh." It

is not by any means adapted for general household use, but is harmless for the purposes indicated below.

Nursing mothers, when the quantity or the quality of the breast-milk is not sufficient, may safely take the cannabis indica tablets manufactured, and sold in the drug stores, for this purpose. The tablets are each two and one-half grains, and may be taken by the mother two or three times a day, for two or three weeks.

Another use of this remedy adapted occasionally for taking without the special direction of the physician is for neuralgia. The tablets just named may sometimes afford relief if two to four are taken each day, four or five hours apart. If the trouble is severe, however, (or if in the above case the milk appears to have anything serious the matter with it), it is always better to first consult your physician, and if you use the remedy at all let it be done under his directions.

CAPSICUM. Red pepper. Capsicum makes a good counter-irritant when used just as a mustard plaster would be applied, and it does not blister. Taken internally with food it has a good condiment or stimulating effect, and does no harm to the digestive organs.

CARAWAY SEED. This is another condiment and carminative, used principally for flavoring.

CARBOLIC ACID. See *Poisons and Antidotes.* Carbolic acid usually comes in crystals in the bottle, but melts slowly at the temperature of an ordinary room. The pure acid is clear when melted. The melting is aided

by exposure to the air, from which the acid extracts enough moisture to make it liquefy.

On account of its being one of the rankest poisons known carbolic acid *should never be kept in the house.* While it is *antiseptic,* being poisonous to all forms of life from the lowest to the highest, yet other antiseptics are to be had nowadays quite as effective if not more so, and not at all dangerous to the human system. One teaspoonful of carbolic acid to the quart of water is the usual germicidal strength. This is positively the only form in which carbolic acid should be permitted to be kept in any home, and doubtless it would save many lives or prevent many suicides if there were a law forbidding druggists from selling it in any other strength than in this solution. Being of an oily character the acid should first be dissolved in a little hot water and thoroughly dissolved before it is added to the cold.

CARDAMON SEED is of the same class and same effect as the above.

CARBON OIL. This is made by merely shaking up together in a bottle or stirring in a cup *equal parts of lime water and raw linseed oil.* If raw linseed oil cannot be obtained sweet oil will do to mix with the lime water. It makes a thick creamy yellowish mixture which is the very best home remedy for burns and scalds. It should be applied very freely and as soon as possible. When so applied it will take out the pain almost instantly. But it is useful only during the first few hours after the injury. When kept

on hand it inclines to separate, but can be used when well shaken.

CASCARA SAGRADA. "Sacred bark." So much is written and claimed in the advertisements about cascara that every one ought to be informed as to the real effects. It is too expensive to be found, any more than in name, as an ingredient of patent medicines. The genuine article is a useful drug, but it is not a physic. It is a bowel tonic, and does not act as a physic unless compounded with some other drug to which in reality the cathartic effect is due.

Cascara is useful only in chronic constipation. It is here that its tonic effect on the walls of the large intestine is excellent. But the so-called preparations of cascara, put upon the market under that name in order to make them sell, contain very little cascara indeed, and hence are useless for that purpose. If anyone desires to use cascara without the doctor's directions it is better to go to the drug store and purchase two or three ounces of the "modified" or "aromatic cascara" than to rely on the advertised nostrums.

CASTOR OIL. To many mothers this old remedy is a sheet anchor in all sorts of children's disorders. It is undoubtedly often used when not necessary. The only redeeming feature about the home use of castor oil is that the general principle of cleaning out the intestinal tract is usually a safe one. The oil itself is not poisonous, although the castor bean from which it is pressed contains an acrid principle or ingredient

so poisonous that three of the beans have been reported to have killed a man.

The Uses of Castor Oil

Castor oil is utterly useless in chronic constipation. Its peculiar effect is to *sweep out* the intestinal tract. When merely that is desired castor oil is a quick and fairly certain remedy. But it often nauseates and even causes vomiting. In my opinion castor oil is vastly over-estimated as a physic, and does not deserve the general use it has. On account of its sweeping-out effect it is useful in children to follow the calomel treatment or when worm powders have been given.

The demands of the household for an easy, safe and effective physic which can be given to children, and one which is reliable and always ready, are so universal that I am going to depart from my usual custom and give directions or the prescription for making a castor oil emulsion for home use in children's cases. I do this because it is a thousand times better for the mother to have on hand a known and reliable physic suitable for the children, than to buy a patent medicine which resembles it only in name, and is probably made of senna and infusion of pumpkin seeds. This formula which I shall give is a favorite one among physicians, and while not a very active physic yet it serves to keep the bowels from being constipated, and when there is diarrhea due to some irritating substance in the bowel it serves to check that diarrhea by sweeping out the troublesome substance. It is therefore a safe remedy in any case,

for no harm can come from its use. For this reason I am giving it for general family use, and in the hope that it may prevent resort being had to unsafe remedies. As it is somewhat difficult to mix correctly, it will be necessary for the druggist to have the full directions, just as they are written here.

A Reliable Physic for the Home

Take, Castor oil, powdered acacia, and white sugar, of each three drams. Mix all together, making an emulsion. Then add: Paregoric, two drams; Aromatic syrup of rhubarb, three drams; and lime water enough to make four ounces. Directions: Shake well and give one-half to one teaspoonful as needed.

This mixture contains so small an amount of paregoric that it can be given with perfect safety in half teaspoonful doses to any child over six months old. It will aid also in relieving fermentation in a child's bowels. Be careful to copy it exactly when sending it to the druggist.

CAUSTIC POTASH. This is one of the severest caustics, and as it is not for home use it is mentioned merely for caution.

CHAMOMILE. There is an erroneous tradition among women, and especially midwives, to the effect that chamomile tea when given to a young babe starts the kidneys and bowels to acting. But it should never be given to a young babe except by the doctor's orders. It is a stimulant, and a tonic to the system, especially useful in convalescence from severe disease. The herb is sold in the drug stores.

CHLORIDE OF LIME, or CHLORINATED LIME, is made by exposing previously slaked lime to the action of chlorine gas in a lead-lined room. The chlorine gas (which is extremely poisonous to animal life) becomes absorbed by the slaked lime. It is then put into cans or other containers and shipped under the usual name of *bleaching powder.*

For disinfectant purposes chloride of lime is the most certain and reliable of all the cheaper chemicals, and is well adapted to such uses as disinfecting vaults and vessels, and for killing flies and preventing the growth of their larvae in refuse and manure. It should appear dry and powdery. If it seems to be moist it is not so active on account of an over-proportion of chloride of calcium, which deliquesces, or turns to liquid.

Six ounces of chloride of lime to the gallon of water makes a solution strong enough for disinfectant purposes for ordinary use.

CHLORINATED SODA in solution, *Labarraque's solution,* contains chloride of lime to the strength of eight parts in the hundred. It is never used internally. On account of its freedom from odor and its ready solubility it is a favorite kind of disinfectant for the sick-room. A very little of it is added to the pail or basin of water used in washing the floors. Labarraque's solution can be purchased at any drug store.

CINNAMON is the bark of the Cassia tree, and comes from China. The inner bark only of the cultivated tree is used.

CLOVES. The dried flower-buds are used. Its use in seasoning is familiar. An oil of cloves is used much in the laboratories for drying specimens. On account of this property of absorbing moisture dentists use the oil in drying the cavities of teeth. It will often stop toothache when applied directly to an exposed nerve.

COCAINE is an alkaloid derived from several varieties of coca. It has a bitter taste, and produces a temporary numbness when applied to the tongue. A two per cent. solution (ten grains to the ounce of water), injected beneath the skin, to the amount of only a few drops, will take away for the time being all feeling from that part and for an inch or so about the point of injection. As this local anesthesia lasts for thirty minutes to an hour it is very useful to the surgeon in minor operations.

The cocaine habit is entirely unnecessary in any case. There is no danger of the drug habit from the legitimate use in minor surgery. Those who get the habit do so because they are not wise and cautious enough to refrain from playing with fire. There is no excuse for the cocaine habit in anyone, for it would seem that it can hardly be acquired without either deliberately or very carelessly continuing its use.

COD-LIVER OIL. This old-time remedy hardly needs description. But there are several grades, the characteristics of which we ought to know. The rich, yellow, thick oil that you sometimes see is the best. It is known as the *shore oil,* because it is extracted from

the livers of the codfish caught near shore and brought at once to land so that the oil is secured while it is yet fresh. It is therefore free from rancidity. It was formerly the custom to *boil* the livers in water in large kettles, drain off the liquid and let it stand until cooled, when the oil was skimmed off. Now the method is to drive currents of steam with such force through the livers in a tank that they are torn to pieces and the oil is more quickly melted out.

Banks oil, or *Straits oil,* is derived from the cod caught far out at the "Banks," where the livers are thrown into casks and kept till the cruise is ended, when they are brought ashore and treated in much the same way. The long keeping in this way allows the fats to become more or less rancid, so that the oil is fit only for commercial uses, not for medicine. Of the oil thus produced there are two grades, brown and black, which are used mostly in treating leather.

The Constituents of Cod Liver Oil

Cod-liver oil is a very complex substance or compound. Besides being a most easily digestible fat it contains, as shown by the analysis of De Jaugh, glycerine, various acids and biliary principles, iodine, chlorine and traces of bromine, phosphorus and phosphoric acids. This is evidently a very important fact, and gives to cod-liver oil an *alterative* as well as a sustaining effect. These ingredients explain also its ability to build up the system.

It is a great mistake to try to take cod-liver oil in the form of an emulsion. Emulsifying the oil is not necessary to its digestion, and indeed if the observa-

tions of others coincide with my own, it renders the oil less digestible while it increases the bulk and makes larger doses necessary. One's dislike of the emulsion generally increases, while one may become used to the taste of the pure oil so that he will not object to taking it.

How It Should be Taken

When taken half an hour after meals the pure oil is not so likely to interfere with digestion, and in this way it becomes less distasteful. One teaspoonful of the pure oil is equal to a little more than two of the ordinary emulsion. Many children will grow to like the pure oil. One teaspoonful of the pure yellow oil half an hour after each meal will be sufficient for a child. Adults should take about twice that quantity, also after meals.

A precaution ought here to be uttered which I have learned to observe with care, namely that if cod-liver oil disagrees too severely with the stomach it is better to leave it off until the stomach is gotten into better condition.

If the Oil Interferes With Digestion

Indigestion is worse than lack of complete nourishment, so it is better to first get the stomach in order and then give the nourishment. The more so as the quickest way to overcome the whole trouble and get the system right is to give first attention to digestion, without which nothing lasting can be accomplished. The way to get the stomach out of this trouble is to begin with a light diet of very highly seasoned broths, a few crisp crackers, or rusks, or a little toast, a cup of hot tea or hot lemonade, some fruit and green

vegetables in small quantities, and perhaps an infusion of some bitter herb taken in small quantity before meals. A weak infusion or tea of gentian or quassia is best for this. When the stomach is ready to receive the oil then let it be given pure. But I would rather have good digestive powers and do without cod-liver oil than to see digestion so badly spoiled by the oil that even the oil itself cannot be properly assimilated.

COFFEE. See *Caffeine,* also the general subject of drinks.

COLD CREAM is an excellent soothing application for the skin. It is composed of spermaceti, white wax, expressed almond oil, borax and rose-water. It is better to purchase it at the drug store than to try to make it.

COLLODION, or liquid court plaster, is a convenient method of covering a bit of broken skin, but it must not be forgotten that any such spot must first be cleansed and disinfected if any sort of dirt or even unboiled water has entered it, otherwise you will be merely shutting up the poison and making it worse. In using collodion remember to cleanse the wound *surgically* first. A very good way is to then put on a little clean cotton or gauze and stick it fast with the collodion.

COMPOUND CATHARTIC PILLS. These are sold in all the drug stores for a physic, and it is much better for the layman, or person who is not a physician, to get them when a physic is needed than it is to buy some

kind of patent "liver" or other pills made to sell, and containing—no one knows what.

Compound cathartic pills are made according to a regular established formula adopted by the U. S. Pharmacopeia after much investigation, and found to be very valuable. They are non-secret, and cheaper for that reason, as well as better.

Compound cathartic pills should never be used as a cure for chronic constipation, but only for temporary relief. The dose is two to four pills. It is often well to take two and repeat the dose in three or four hours if still needed.

COMPOUND LICORICE POWDER is a mild and very excellent aperient, useful for children and for women after childbirth. It is composed of senna, 18 parts, licorice 16, washed sulphur 8, fennel 8, and sugar to make up the 100 parts. The dose is one-half to one teaspoonful.

CONFECTION OF SENNA is another one of the mild and pleasant aperients, and is suitable for the same purpose as the above. The dose is one-half to one teaspoonful.

COPPERAS, or sulphate of iron, is not the strongest but it is the cheapest of all disinfectants for cess-polls, privy vaults, etc. It should be used *freely* and sprinkled on in fine powder or poured on in solution in order that it may reach all the substance.

CORROSIVE SUBLIMATE, or BI-CHLORIDE OF MERCURY. Twenty years ago this was used more than any other disinfectant, and possibly more than all others. But

on account of its corroding action on instruments and vessels many surgeons are using it now only seldom. Because it is a most violent poison it should certainly never be kept on hand in the home, and it is far better to rely upon other disinfectants or germicides. Another reason why it should not be used is that it partially defeats its own purpose by coagulation of the albumen of the tissues when used strong enough to be germicidal, and this coagulation shuts it out from the deeper layers of bacteria. See also *Disinfectants.*

COUCH GRASS, or Triticum Repens, is sometimes used for making a tea for painful inflammations of the bladder. But in this condition it is much better to consult a physician than to rely upon any home remedies.

CREAM OF TARTAR. When grape-juice ferments and alcohol develops there is an acid salt insoluble in the menstruum which therefore settles to the bottom. This salt is called *argol of tartar.* Tartaric acid is made from this substance by treating it with lime. This acid differs from all others by forming with a neutral solution of potash a crystalline *bi-tartrate* which is then pulverized and sold in the grocery as cream of tartar.

Aside from its use in cooking, cream of tartar has medicinal value as a cathartic which produces abundant watery evacuations. It also has a marked diuretic action. It is the great remedy in *dropsy,* being given to get rid of the excess of water in the tissues.

It is given in large doses, often half an ounce being taken in twenty-four hours.

CREOSOTE. Creosote is made by the destructive distillation of beechwood. It is poisonous, but not as much so as carbolic acid. But it answers some good purposes to which it can be put by anyone. It is only mildly caustic, and is germicidal, therefore makes a good application for such troubles as canker sore mouth, toothache, and foul sores. It is best applied pure and in very small quantity direct to any surface needed, such as the exposed nerve of an aching tooth, which it is almost sure to relieve in a few minutes. Being disinfectant, too, it does actual good by stopping the decay. It kills the nerve and disinfects the cavity.

Helps in Case of Consumptives

There is another line of troubles in which creosote has a most important use. Physicians agree that *consumptives* must in a very large measure take care of themselves, especially in all sanitary and hygienic matters. In other words, that each person must fight the battle largely for himself. This idea leads to a general neglect on the part of both patient and physician in all too many cases, but it necessitates an intelligent care of self on the part of the victim. Having learned to rely upon creosote in those cases in which there is a good deal of digestive disturbance and intestinal poisoning I shall give directions for its use in such manner that it can be done at home. But I desire to first most emphatically declare that no person attacked with this disease should take the

risk of an attempt to cure himself. He should seek the aid of a competent physician and then bend all his energies to the task of getting well. He has a serious task and should lose no time.

Best Way to Take Creosote

I have found that by far the best way to take creosote is in gelatine capsules with either cod-liver oil or the compound syrup of hypophosphites. Get the empty capsules of the size to hold ten or fifteen drops, also two or three drams of beechwood creosote, a bottle of pure cod-liver oil, and two glass droppers, one for each of the liquids. First fill the capsule nearly full of the cod-liver oil or the syrup, then with the other dropper add one drop of pure creosote. Now replace the cap on the capsule and the medicine is ready for taking. Capsules so filled will keep for several days, but better make them as needed. The best time to take them is within half an hour after eating as the fat is most easily digested at that time. One after each meal is sufficient, or three times a day. The desired effect is checking of the loss of flesh and strength, of the night sweats, and a healthy increase of the appetite after a few days. Let the physician be the judge as to results, and how long to continue.

CRESOL is a distillate of coal tar. It makes a milky solution with water, and makes a good wash for wounds discharging pus. One teaspoonful to the pint of water is sufficient. It must be kept from strong light while on hand.

CROTON OIL is a too violent poison for home use. It

is a quick and drastic cathartic, one drop on the tongue sufficing to move the bowels.

DANDELION is a very inactive tonic and stimulant to the kidneys as well as the liver, if indeed it has any action at all on the human system. It is conceded that it must be taken a very long time before any effect from it can be noticed. A wine or tea may be made from the roots and stems. Italians gather the stems and leaves in large quantities for "greens" the same as we use spinach.

DECOCTIONS are made by boiling any drug in water. It is all right for barks, and for some roots, especially for those which contain no volatile principle which is of value, which would escape in the form of vapor; or not too much sugar and starch, because a thick syrup would result which would spoil in a short time. The great difficulty, too, is to get a decoction of sufficiently definite strength. A given weight of drugs will not always yield the same strength on boiling. The making of medicines at home by boiling herbs together is a very uncertain and unsafe procedure because of this fact. When one must have drugs or remedies it is much safer to go to the drug store and get those already prepared and of definite, known strength. This is more noticeable in some home remedies than in others. A decoction of barley, for instance, is free from objection, while a decoction of flaxseed is unpalatable on account of the oil dissolved out of the seed by the boiling water. Flaxseed should not be boiled for this reason, but boiling water

may be poured on it and the mixture allowed to stand for awhile.

DIARRHEA MIXTURE. It seems to be essential for one raising a family, especially when they are some distance from their physician, to have at hand some kind of a remedy for diarrheas and disorders of the bowels such as are of more trivial character. Here again the caution must be enjoined that seemingly trivial disorders must *always* be carefully watched, and if they do not readily respond to the home remedies the doctor must be called at once, for diarrheas always mean that something is wrong which may result seriously. And again it should be said that it is not safe to check a diarrhea too quickly.

Squibb's diarrhea mixture is one long tried. The formula was devised in the year 1866 by Dr. E. R. Squibb. Each teaspoonful contains about seven minims each of the tincture of opium, tincture of capsicum, and spirit camphor, and about two and one-half minims chloroform, with alcohol.

A Better Mixture for Diarrhea

But another and a much preferable mixture is now prepared by the same manufacturers, in which dilute acetic acid is used in the place of alcohol, the acid being a help while the alcohol is a hindrance to the cure. This latter mixture is very much better. It is called the *acetated diarrhea mixture,* and this should be the one called for. One teaspoonful is the dose for an adult. For a child of three years, three to five drops is plenty. The patient is required to go to bed, and a dose is given after each movement,

which serves to check the bowels quite as quickly as they should be checked.

The trouble with all these diarrhea mixtures and indeed those of all kinds, is that they tend to bind the bowels with their fermenting and poisonous contents. The emulsion of castor oil which I have elsewhere recommended (see Castor oil), is not open to this objection, but is safer in that it first cleans out, then quiets the bowels. It cannot be too strongly urged that this is the only safe plan to pursue in any bowel trouble.

DILUTENTS, or diluting or dissolving liquids. The solution of the different substances within the body is the first step toward getting rid of them, and must therefore be an important item in the prevention and cure of disease.

Water is the only dilutent. It is doubtless true that it would be well for most of us to drink more water than we do. Sometimes in acute Bright's disease even with dropsy, water assists in elimination to such a marked degree as to actually relieve the dropsy. At other times, however, and always unless it definitely increases the amount of urine excreted, it makes the disease worse. When there is a tendency to form gall-stones or gravel, water must assist in the needed solution and help to relieve the condition.

DIPSOMANIA TABLETS. It can hardly be said to be the custom of physicians to treat or even to be called to treat, cases of drunkenness. But drunkenness is *a*

disease, and the patient should receive the doctor's best care. When there is an overwhelming craving for drink we must recognize it as a diseased condition, and treat it accordingly. The natural powers of resistance are diminished, and the patient really needs help to counteract the craving. In such a state a good deal of valuable aid is undoubtedly rendered by giving one or two tablets every two hours for a few days until the system is brought into better condition. But there must be a desire on the part of the sufferer, for a sufferer he really is, to break away from the habit.

The Liquor habit can be cured

These tablets comprise principally the treatment which is generally used by some of the advertised liquor cures and are used with good effect. Each tablet contains: gold and sodium chloride, one twenty-fourth grain; strychnine nitrate, one-sixtieth grain; nitroglycerine, one four-hundredth grain; atropine sulphate, one two-hundredth grain; tincture of digitalis, three minims; and oleoresin capsicum, one-eighth grain.

These tablets are dependable and if used as prescribed and are aided by the patient's desire to be made well, will produce satisfactory results. The inebriate is in most cases curable, and he should be cured. The only way for most men to get the needed help is by medical attention of the right kind.

Alcoholic Beverages Extract the Moisture

The fact which we often overlook is that alcoholic beverages have as one of their most marked effects the extraction of the natural moisture from the tissues, and that therefore the desire for drink is an inevita-

ble and most natural demand. It must be supplied, but not by that which will merely create more demand. It must be supplied by that which will quench the inordinate thirst, and that is water. Water in plentiful quantities and often *will* soon quench the thirst, and will remove in great measure the craving for liquors. This craving is the result of both the dry throat, which tradition and long habit has taught the man goes with thirst, and an unconscious feeling of *depression* caused by the presence of liquor in the system (for liquor *is* depressing), or the effects of previous indulgences. All the tissues of the body also cry out for moisture, and water will soon satisfy the demand to some degree. Frequent bathing and friction of the skin will also prove effective.

DISINFECTANTS. See special chapter.

DOVER'S POWDERS. This is a compound of opium and ipecac in sugar of milk. Each ten-grain powder of Dover's contains one grain of ipecac and one grain of opium. The opium is the most active, and as opium is injurious rather than beneficial in an attack of "colds," so is Dover's powder. The old way of breaking up a cold with Dover's powder is no longer practiced. Instead we now use some one of the coal-tar derivatives (phenacetine, acetanilid, etc.), and a hot lemonade or cup of hot tea. These and a warm bed generally suffice.

EFFERVESCING DRAUGHT. One of the most useful as well as delightful drinks for the sick when there is fever, and especially when there is nausea and vomit-

ing, is this. It is made by adding together two solutions, one of which consists of lemon juice and water equal parts, or of citric acid two teaspoonfuls to four ounces of water, and the other consisting of one teaspoonful of bicarbonate of potash in three ounces of water. The drink is made by putting together two tablespoonsful of each, and is to be drunk while it is effervescing. For a child one tablespoonful of each may be sufficient. The effect of this drink is to cool the system and to aid in elimination.

EGG-LEMONADE. This is made by beating up well together in a goblet the juice of one lemon (or half of a very large lemon), the yolk and white of one fresh egg, and three or four teaspoonsful of sugar. When the egg is thoroughly whipped up with the sugar and lemon, enough cold water is added to fill the glass. This is the best of all the egg mixtures, as well as the most refreshing. When a person is running down, with appetite poor, and sluggish state of all the secretions, there is nothing which will better build up and maintain the functions of the intestinal digestive organs than this. Such a drink, taken each morning, will do wonders. Also later in the day if desired.

EGG-NOGG, as usually made is much heavier and less digestible than the above. Indeed it is often rejected by the sensitive stomach. One objection to it is the milk given in this combination. Another is the whisky. Since it is found that whisky irritates the stomach and depresses instead of stimulates the system, egg-

noggs containing whisky are much less used than formerly. The old way of making egg-nogg is to beat up thoroughly the yolk of one egg with five ounces of milk and half an ounce to one ounce of spirits, then a little sugar with the white of the egg previously beaten up to a froth.

EGGS served raw are not easily digestible unless well whipped so that the albumen of the egg loses its resisting power against the gastric juice.

ELIXIRS, formerly so much in favor, are no longer prescribed as freely, since the whisky, which was always acknowledged to be the chief ingredient of most of them, is not to be regarded as beneficial to the system.

ENEMAS. See *Injections.*

EPSOM SALTS. Sulphate of magnesia. "Bitter salts." Salts of this kind are often spoken of by physicians as "saline cathartics." They are *physics,* and generally act promptly. They are rather harsh in action, and clean out the bowel quite thoroughly, so that another movement is not likely to occur as soon as it otherwise would. For this reason many people have thought that salts have a binding effect on the bowels afterwards. This is probably not true.

Taking Epsom salts habitually is not at all good practice. Very rarely they are needed. They are especially good to clean out the bowel, including the small intestine. The time to take salts if at all, then, is after taking calomel or worm powders, or when there are fermenting substances to be removed. Exertion after taking salts is not wise.

ERGOT. There sometimes comes a condition in which a woman may safely take ergot when not directed by her physician, and that is when a slight flow continues after her periods much longer than normal. In such case she may try taking ten drops of the fluid extract three or four times a day until the difficulty is checked, but if that does not result readily it is needful that she consult her physician.

ERIGERON, or Canada fleabane, furnishes an oil which is an oldfashioned remedy for "flowing," particularly that which appears between periods. Dose 5 to 10 drops.

ESSENCES. There is no difference between the "essence" of a drug or herb and the "spirit" of the same. Both essences and spirits are weak alcoholic extracts, except perhaps in the case of pepsin. The Fairchilds announce that they make an essence of pepsin which contains no alcohol. But this is because alcohol is known to interfere with the action of the pepsin ferment.

There have been one or two instances, if not more, in which the essence of Jamaica ginger has been found to contain *wood alcohol,* and was therefore very poisonous. It is not likely to happen under our present pure food laws.

ETHER. I speak of this drug chiefly because of its inflammability. Even the gas or vapor of ether will burn with explosive effect, much as benzine vapor will. It is a very heavy vapor, hence must never be used near a stove containing fire, nor when there is

a lighted lamp near the floor. These precautions are given because ether is often used in cleansing fabrics, or as an ingredient of cleansing mixtures.

EUPATORIUM. See *Boneset.*

FENNEL is a valuable digestive stimulant and carminative. The dose is fifteen grains.

FEVER DRINKS and fever drops are useful and harmless when well chosen. The effervescing draught already described, and acidulated drinks such as those made by adding a teaspoonful of cider vinegar to a glass of water, or a few drops of dilute phosphoric acid, or of tartaric acid, or a teaspoonful of lemon juice, are only a few of the grateful and beneficial drinks.

FIGS are a useful and harmless saccharine fruit, especially where there is a tendency to constipation. Sweets are in these cases necessary, and this is one of the best. The seeds do no harm.

FLAX-SEED. On account of the oil contained in the seed they have a decidedly laxative effect, and the action is so benign that it makes a very valuable remedy when there is much irritation of either the digestive or the respiratory tracts. I have known people to eat the seeds previously soaked in warm water, and the effect was good, but the unpleasantness of the taste will prevent that way in most cases. In order to keep from getting the oil out of the seeds they should not be allowed to *boil,* but boiling water may be poured on them and the tea then made by steeping the seeds. Such a tea may and should be taken in

large quantities. It is very excellent as a demulcent drink, and is always promptly laxative.

FLEABANE. See *Erigeron.*

FLOWERS OF SULPHUR. See *Sulphur.*

FORMALDEHYDE is a newly official product, and is a valuable disinfectant and deodorizer. It is very similar to wood alcohol, being a product of the partial oxidation of methyl alcohol. It is therefore *poisonous.* It is a preservative fluid, and is much used by undertakers in embalming. For disinfecting purposes a solution of sufficient strength is made by adding from two to four teaspoonsful to a gallon of water.

FOWLER'S SOLUTION is the liquor of potassium and arsenic. These two valuable remedies are well combined in Fowler's solution. From two to five drops may be given after meals in such conditions as the anemia of young girls or of chronic malarial poisoning, with splendid effect, but the conditions are such as make the action of any remedy necessarily slow in producing any visible effect. It must not be given, however, except as directed by the physician. Arsenic is not a drug suitable for household use.

FUSEL OIL is a very crude form of alcohol, (one of the lower grades of Amylic alcohol), and is quite poisonous. It is claimed that the poisonous effects of some of the commercial alcohols of lesser proof are due to the presence of fusel oil, and this to lack of proper distillation.

GAMBOGE is a hydragogue cathartic, that is, it produces water evacuations. It is too severe to be used alone, however, and is only used as an ingredient of certain useful compounds, notably the compound cathartic pill.

GARLIC in small doses is a stimulant to the digestion, but is used chiefly in bronchitis as a stimulating and rubefacient poultice. It is in this way applied to the chest of infants in suffocative catarrh and bronchitis. If too strong it is sometimes mixed with flaxseed meal. The oil may be used, or the herb may simply be reduced to a pulp by pounding. A poultice so made is declared by Prof. Wood to be very useful in the deep-seated "colds" of children.

GELSEMIUM, or Yellow Jessamine, of the Southern States, is a very useful drug, and produces a very pronounced effect upon man. The great difficulty of using it is the wide difference in the effect it produces on different people. A dose of two or three drops of the fluid extract, or five to ten drops of the tincture is sufficient for general use and is about all one ought to give until it is determined what the effect will be. Unless the physician is actually present or specifically directs its use, gelsemium is not to be considered a remedy for administration by the unskilled.

GENTIAN is a bitter stomachic, pure and simple. When for any reason the stomach is relaxed and depressed, and when in chronic gastric catarrh the mucous lining is evidently in a condition of low tone as shown

by the coated tongue and slow digestion, gentian is one of the most useful herbs we have. It is best given before meals, and in the form of the cold infusion with other aids as given in formulas elsewhere in this work.

GIN is popularly believed to act especially on the kidneys, and to be less harmful than other drinks. But there is nothing whatever to support such an idea, which is entirely erroneous. The berries of the juniper do yield their oil to the action of the alcohol, and this much of the content makes of gin a kidney stimulant, or would do so were it not for the much stronger and more paralyzing alcohol ingredient. As the juniper berries yield their oil to boiling water as well as to alcohol a *decoction* of them is better than the spirit, or gin.

GINGER is a most valuable herb, for one thing especially. When there is *gas* on the stomach, and contraction of the cardiac orifice of the stomach prevents the gas coming up, so that it is retained within the stomach and causes severe pain and cramps by its pressure, a tea made of *ground* ginger is the best of all remedies to relax this orifice and permit the gas to escape, thereby giving instant relief. It should be taken freely and hot.

GLACIAL ACETIC ACID is the *stronger* acetic acid, and is an active caustic. It is used only as an application to destroy warts, etc.

GLAUBER'S SALT (Sulphate of sodium), is made from common salt by the action of sulphuric acid. It is of

more nauseous taste, and is more irritating than Epsom salt, and is for this reason used only in veterinary work.

GLYCERINE is what might be termed a *fatty alcohol,* that is, while it is similar to alcohol in its chemical composition, yet it is derived wholly from fats and by some process of their decomposition. It was formerly a by-product in all soap factories, and so crude and full of impurities that it was wasted. More recently, however, by patented processes of purification, it is saved. When fats are saponified, as in the process of making soap, certain oily ingredients escape, and when purified and distilled yield a glycerine which, when purified, does not become rancid, and contains no acid. Glycerine should be clear, and should taste perfectly sweet. Most of the glycerine manufactured for commerce is made by splitting up large quantities of fat by the force and heat of heated steam.

Special Advantages of Glycerine

Glycerine is non-medicinal so far as its internal action is concerned. It does not evaporate when exposed to the air, but has a peculiar hygroscopic property, by which it extracts moisture out of the air. Its hunger for moisture is probably the reason for its use as a local application, but it is, aside from this, a very convenient vehicle or base for ointments, "creams," etc., because it does not become rancid. It will assist in reducing chronic inflammation by withdrawing moisture from the tissues, and this action is continued for some time. When used for this pur-

pose it should never have any water added to it, for this would satisfy its affinity for moisture and destroy this action. On the other hand when it is used for its emollient effect, as to relieve or prevent chapping of the skin, water is a very necessary ingredient, for the chapping is caused by the wind extracting the natural moisture from the skin, and the purpose of the glycerine is to supply the natural fat and protect the skin.

Glycerine as an ingredient of cough mixtures is good only to sweeten, and to provide a syrup or carrier which does not spoil.

GOLD CURE. See *Dipsomania tablets.*

GOLDEN SEAL (Hydrastis) is prepared from the dried roots of Hydrastis Canadensis, or Orange Root. It is an alterative, bitter tonic, and taken internally also relieves uterine catarrh and hemorrhage. It is therefore an excellent medicine for leucorrhea. The dose is five drops of the fluid extract taken in water both before and after meals.

GOOSE-GREASE has no particular medicinal value, except that, like glycerine, it does not easily become rancid. It is much more bland in its action, however, for its desire to absorb moisture is nil. It makes an excellent base for applying turpentine to a child's throat and chest.

GOULARD'S EXTRACT is a solution of the subacetate of lead, and is only for local application. It readily decomposes, and for this reason in part, is not as good as the lead-and-opium wash, elsewhere directed.

GRANULATED CITRATE OF MAGNESIA is a saline purge. It is convenient, being ready to add to water and drink during effervescence. Its taste is not as agreeable as that of the liquid.

GRAY POWDER is a combination of mercury with chalk. Its use is the same as that of blue mass. Dose one-half grain to ten grains.

GUAIAC is an alterative and diaphoretic. It is the resin of a tree called *lignum vitae,* which grows in the West Indies. Average dose of the resin is fifteen grains. The best way to administer the drug, however, is in the form of the tincture, one teaspoonful of which can be taken in milk three or four times a day. It is used much in rheumatism and blood diseases.

GUARANA is a Brazilian plant, and according to Attfield, Stenhouse, and others, owes its stimulating action to the presence of *caffeine,* also present in coffee.

GUM ARABIC, or GUM ACACIA is the gum from which mucilage is made. It oozes out from the Acacia tree, and is imported from Africa and Australia. Mucilage has a medicinal effect as a demulcent or soothing mixture, and is used to give harsh medicines in. The acacia powder is white and smooth, and is especially adapted to making emulsions when mixed with an equal quantity of white sugar.

GUN-COTTON is made by steeping common raw cotton for a few minutes in a mixture of heavy nitric acid and concentrated sulphuric acid, and then pressing it. Dissolved in ether this makes the very useful

collodion. This has no medicinal value, but simply protects any surface, keeping out infection through any spot where the skin is broken.

Celluloid is a mixture of gun-cotton and camphor, and burns readily.

GUTTA-PERCHA is not hardened rubber, as is so often supposed. It is naturally a whitish or pinkish solid, the concrete juice of the Isonandra gutta, a large tree growing in the Malayan Archipelago.

HABIT is, in the matter of medicines and their effects, as in everything else, a strong factor which must always be taken into account. When a person is in the habit of taking one kind of a physic he becomes less sensitive to all other kinds. When a man is addicted to one narcotic, like opium or tobacco, he becomes less liable to the influence of all others. And the sailor, for instance, accustomed to the buffeting of winds, is much less sensitive to drugs of all kinds than is the delicately organized woman who is in every sense a "hot-house plant."

HARTSHORN. See *Ammonia.*

"HASHISH" is an Arabian preparation of the drug, Cannabis Indica, or the so-called *Indian Hemp,* although it is grown in this country.

I have spoken of its effects elsewhere. It is used especially to relieve pain. It works best in those cases where the nerve tissue is the seat of the pain, as in *neuralgias.* It must be given in continued doses until the physiological effect is produced. It does not nauseate, as opiates sometimes do. I have found

its best use in *sciatica.* This is another one of the drugs, however, which no one should take unless prescribed.

HEART STIMULANTS. These are remedies which increase the power and force of the circulation, and are therefore of great importance at the particular time when needed. When a person faints, or swoons in collapse, such remedies are needed. As stated, the great majority of such persons will recover without help in a few minutes, and the thing to do is to place them in a safe position with the *head lower than the body.* But if then they do not recover, or if there is still much prostration after consciousness has returned, some heart stimulant will be necessary.

A Splendid Heart Stimulant

One of the best is the *aromatic spirits of ammonia.* It can be given them to *inhale* if still unconscious, or can be given internally in doses of one-half a teaspoonful, and repeated often if needed. Alcoholic drinks are not heart stimulants, and should not be given for that purpose. The habit of many of giving whiskey on every such occasion is worse than useless, as the effect of the drink is not to send the blood to the brain, but rather to draw it into the great abdominal vessels. Champagne is an exception to this on account of its small alcoholic content, and the presence of its carbonic acid gas. "Smelling salts" have rather gone out of date. They are slightly stimulating and reviving to the fainting person on account of the ammonia they contain. Strychnine is

not to be given except under the doctor's direction, for *staying* and *steadying* the heart's action.

The *caffeine* contained in one or two cups of strong coffee or tea is also an effective heart stimulant. Any hot drink has a small measure of the same effect. Absolute quiet of the patient, in a reclining position, or lying down, is necessary.

Hot Coffee or Tea Beneficial

HEAT, applied all over the body, dry heat, that is, by means of dry heated blankets is extremely useful in sustaining a failing heart. The person must not be permitted to exert himself in the least when the heart-failure is extreme. Remember that *hot* drinks rather than iced drinks are helps toward reviving a person who has fainted, or is suffering from the shock which sometimes follows upon an injury, or is unconscious from almost any cause. The best thing the bystander can do, however, is to merely see that the sufferer is in an easy position, with the head a little lower than the body, and quietly wait for nature to assert herself and restore consciousness.

HEMP. See *Hashish,* above.

HIVE SYRUP is a very useful remedy for the relief of spasmodic croup, or, as its name implies, to cure hives by producing vomiting when a stomach is loaded with irritating foods or products of fermentation which irritate the skin and cause the eruption. It is doubtless true that all forms of hives are due to some such irritation of the intestinal canal. Hive syrup owes its action to the tartar emetic it contains, which is in the proportion of about one grain of tartar

emetic to the ounce of syrup. The dose is therefore from fifteen to thirty drops of the syrup, a larger dose being often necessary to produce vomiting. A small dose makes a very excellent expectorant in *bronchitis*, or in common colds.

HOPS. The action of hops on the system is very doubtful, except possibly as a bitter tonic, and a feebly-acting nerve sedative. The time-honored hop poultice seems to owe its supposed sedative action chiefly to the heat and moisture which accompanies it. A dry hot flannel would generally do as well.

HOREHOUND is a very mild and trifling expectorant.

HOT BATHS AND HOT PACKS. See chapter on *The Uses of Heat and Cold.*

HOT DROPS, or the old "Number Six" is the tincture of capsicum and myrrh. It is a fair remedy for stomach pains, in doses of fifteen to thirty drops.

HYDRASTIS. See *Golden Seal.*

ICELAND MOSS yields on boiling a lichen starch, and a bitter principle called *Cetraric acid.* From its bitter principle it is supposed to be a tonic, but there is no especial evidence of value concerning it.

ICE. The physiological effect of ice locally applied is to contract the tissues and blood-vessels of the part to which it is placed. For this reason it *prevents* swelling rather than to cure it after it has once arisen. On the skin and mucous membranes ice is a powerful *irritant*, causing at first a distinct blanching, then quickly a distinct redness, showing prompt reaction. The effect of ice-water drinking in produc-

ing acute gastritis is doubtless due to this irritating effect.

When ice is applied to prevent swelling and inflammation it should be done in the earlier stage and be kept *continuous,* so the reaction may not occur.

ICHTHYOL. This is one of the newer products which have come into general use on account of its power of *taking out inflammation.* It is a bituminous or coal tar product, a thick, brown liquid, with the smell and taste of soft or bituminous coal. It is derived by distillation from a shale which contains sulphur in an organic combination and readily assimilable form.

Mixed with pure glycerine ichthyol is perhaps the most efficient single remedy we have to take the inflammation out of a swelled part, even when the inflammation is caused by some kind of an infection. One or two teaspoonsful of the ichthyol to an ounce of glycerine is sufficient. It is to be poured on thick, and cloths saturated with it kept to the part. Its action is also astringent and alterative.

INDIAN HEMP. See *"Hashish."*

INDIAN SAGE. See *Boneset.*

INDIAN TOBACCO. See *Lobelia.*

INFUSIONS. This word is about equal in meaning to the word *tea.* While a *decoction* means a solution of a drug which has been *boiled* (the word meaning, having been boiled), this word infusion is more like tea because in this case the drug has only been *steeped.* This way is more suitable for some drugs, because boiling, as in the case of tea, extracts an undesirable and

sometimes *injurious* element (as the *tannin* of tea, for instance). An infusion, then, is made by merely steeping. But sometimes the water is not heated at all, in which case it is known as a *cold* infusion.

A cold infusion is always made by "maceration" (soaking). Such is the cold infusion of *gentian.* The maceration requires twelve hours.

Infusions and decoctions do not *keep* as well as tinctures. They must be used while comparatively fresh. Tinctures also are the *alcoholic* solutions and sometimes the drug contains a resinous or an oily ingredient or active principle which can be dissolved out only by alcohol. Of course tinctures do keep well. All gums, like guaiac and benzoin, must be dissolved by spirit.

IODINE. This is a drug which admits of many combinations and many uses. It is primarily an alterative, but its most common use among people generally is for a counter-irritant and absorbent. There is no doubt that "painting with iodine" is a great help in those conditions for which it is *adapted.* It does little if any good in varicose veins, for here we have a liquid which is moving onward too slowly in its current. But when products of inflammation are to be absorbed, when there is swelling and puffiness of any of the joints, or when there is a small cystic tumor, iodine promises good results, provided time be given it to promote the absorption. The Churchill's tincture is the best to use, and it should be painted on every other day.

Valuable to Increase Tone of Tissues

As an alterative dose for internal use, for the relief of asthma, and the *results* rather than the actual inflammation of rheumatism, for anti-syphilitic purposes, and wherever it is desired to increase the tone of the tissues and promote tissue change, iodide of potassium in two or three grain doses after meals is very valuable. It is best taken in syrup of ginger, or the syrup of orange peel. This use is to be only under the doctor's orders.

I have already had occasion to recommend the use of the syrup of the *iodide of iron especially* for anemic children and those with enlarged tonsils. There seems to be nothing in all the realm of medicines that can take the place of this compound for the conditions named. But it must be used for a long time, and faithfully. The dose of the syrup is eight to ten drops, to be given in simple syrup after each meal. First consult your physician.

IODOFORM is the yellow powder of disagreeable odor and disinfectant properties familiar to most people. It is especially helpful in the healing of old sores. It is stimulating, its healing powers being due to the free iodine which it contains. When put on too freely it rarely occasions a slight eruption, but this subsides when the dressing is removed.

IPECAC is a valuable home remedy because effective always as an emetic, and no harmful results arise from giving more than is actually needed, except that the vomiting will be kept up longer than is necessary. In very small doses ipecac is a mild and most excel-

lent expectorant, that is, to loosen up a cough. For this latter purpose five to ten drops of the syrup of ipecac, or the same amount of the wine, repeated every two hours are sufficient. For the vomiting effect five grains is not too much, and half that can be given to a child one year old. When it is desired to produce vomiting the ipecac should be accompanied by large drinks of warm water, which facilitates its action. The dose for producing vomiting must be repeated every ten or fifteen minutes till the effect is secured.

IRISH MOSS is a food much like arrowroot, but is often used in its place. It is a nourishing and demulcent starch, containing also a vegetable principle called *Carrageenin.* It is also very rich in nitrogen, and is therefore an almost pure protein food. The moss is first soaked in cold water for ten minutes, and then an ounce of it is put into a pint and a half of water and boiled down to one pint, then sweetened and flavored to the taste.

IRON. This is one of the remedies most widely used of all. The red corpuscles of the blood seem to owe their oxygen-carrying capacity to the haematin, or haemoglobin (that is, the iron ingredient), which they contain. The vitality of the system is quickly diminished when the proportion of this red coloring matter grows less. Such a condition is called *anemia,* or bloodlessness, and, except in cases of severe hemorrhage, does not mean that the actual *volume* of the blood is diminished, but that its red cells or their iron

content have. To restore this lost iron and the normal capacity of the blood to carry oxygen is always the purpose in giving iron.

Many Preparations of Iron

There are more than half a hundred different preparations of iron which are alleged to have medicinal values, and each of which may in rare conditions be preferable, but for our purpose we need consider only a very few of them. Blaud's pills are possibly the most generally used, but as I have shown elsewhere (see *Anemia*), they are not always dissolved, and of course when not they do much harm and no good.

Large doses of iron are entirely unnecessary. The system can absorb only very small amounts of it, and the chief question is, what sort of compounds of iron are the most soluble and the least objectionable?

Hydrochloric acid being the free acid of the stomach, it is argued that *chlorides* of iron are the most readily digestible. The commonest liquid preparation of iron is the tincture of the chloride. The only difficulties are that it is slightly constipating, and slightly irritant, and that it stains the teeth. These objections cannot be urged against the powder or pill known as Quevenne's iron, or iron by hydrogen, which may be taken in two-grain doses for an indefinite length of time. Of the tincture of the chloride of iron above mentioned, five to ten drop doses may be taken in a teaspoonful of syrup thrice daily after meals, the teeth being well rinsed after

each dose, and this may and must be kept up for some weeks or even months, in order to derive best results.

As an Aid to Overcome Anemia

Arsenic is a most excellent congener (aid) of iron, and in the most chronic anemias it is best to take some arsenic also.

The preparation best adapted to children is the syrup of the iodide of iron. The iron content is small, but appears to be quite large enough. It is a mistake to try to force iron into the system too rapidly.

Many have claimed that the *albuminates* of iron are the most easily digestible, and on this plan several very elegant new combinations have recently been put on the market. They have the advantage of being ready and not unpleasant to take, and are therefore well adapted to family use. The dosage of each is included among the directions.

Benefits from Mineral Waters

Mineral waters which contain iron (Chalybeate waters), are a most excellent way to take iron. Very little iron is taken in this way with each drink, but all that is taken appears to be absorbed, for none is usually excreted by the urine.

These general hints will suffice to show the purpose and results of taking iron. As to when and what kinds of the preparations, and indeed whether to take iron at all or not, always first consult your physician. He will add the special information necessary in your case. Many think they need iron when they do not, but more fail to take it in time

when they really need it. It is always best to consult the physician when in doubt. Thin blood, or anemia, is the beginning of decline for many.

JAMAICA GINGER is the same as common ginger, except that it is lighter colored, due to the darker outer coating having been removed. Ginger is a most valuable carminative for the removal of gas from the stomach and the relief of *colic.* Sometimes there is failure on account of the herb not being *fresh,* as it loses its strength rapidly. Perhaps the best use is secured by taking about one teaspoonful of the fresh drug or root *ground,* (not powdered), and making a tea by pouring boiling water over it. Let it be drunk then while as hot as it can be borne, and the effect will be all that is desired if the drug is fresh.

JAMESTOWN WEED. See *Stramonium.*

JUNIPER. The berries are used, and the effect is that of a stimulant diuretic. See also under gin, which is the *compound spirit of juniper.* But a much better use of juniper than that from gin can be secured by making a *decoction* of the berries by boiling them in water.

LAVENDER, in the form of the *compound spirit of lavender,* is an agreeable and effective cordial and stomachic. The dose is from one teaspoonful to one tablespoonful. It is used also to take disagreeable medicines in.

LAXATIVES. The constantly recurring problem of regulation of the bowels is solved to much better advantage by choice of foods than by use of drugs. It is a

well-established principle that the more highly nutritious foods, such as meats and proteins of all kinds are constipating; and on the other hand, that the more bulky sugars and starches are more generally laxative. I fully believe that one of the chief advantages to the vegetarian is his freedom from constipation, which in its last analysis means a great deal more than the mere regulation of bowel movements. All the excretions, and all the discharges of tissue waste and bodily effluvia are involved.

Best Laxatives Furnished by Foods

Nor does the action of a purgative necessarily mean relief from all the evil results of constipation. But when by the discreet choice of laxative foods and, sometimes when needed, of laxative remedies, we keep the system in such state that the eliminative functions are all naturally performed, we are wisely maintaining that state which makes for health and efficiency.

I have mentioned elsewhere some of the laxative foods. But each individual will by experience know pretty well what foods within the range of his diet will produce this regulating effect. Of the remedies for this purpose we have tamarinds, which enter into the *confection of senna;* sulphur, which see; and magnesia, which will also be spoken of more fully elsewhere.

LEMONS. That lemon juice has a distinct and valuable action on the tissues of the body, and assists in the process of nourishment, is proven by its extensive use in *scurvy,* and also in rheumatism. In catarrhal

jaundice also, and when there is sluggish action of the liver, lemon juice has a distinctly curative value. While the chief acid of lemon juice is *citric acid,* yet the juice has better effect than the acid, and should always be preferred. In scurvy, for instance, lemon juice will cure, while citric acid will not.

To carry or keep lemon juice on a long trip or voyage, boil slightly, strain, cool, then pour into bottles with a layer of pure olive oil in the neck of each bottle.

There are very few diseases, if any, in which lemon juice in the form of lemonade is injurious, and where the nourishment of the body is involved it is usually quite beneficial.

LEMON PEEL is an entirely different production, and is useful only for flavoring. *Essence* of lemon is made from the peel. So does the *oil* come from the peel.

LEMON, SALT OF. The so-called "salts of lemon," or *oxalic acid,* or *salt of sorrel,* is the *acid oxalate of potassium.* It has no medicinal value, but its use in most households will necessitate further mention of it under the head of poisons and antidotes.

LICORICE is from the root of Glycyrrhiza glabra, a plant growing in Southern Europe. It is a demulcent, pleasant and sweet to the taste, and does not sour as sugars do. It is therefore used in medicines to sweeten and disguise the disagreeable drugs. The most common and convenient use of licorice is in the form of *Brown Mixture,* which can be purchased at any drug store. Half an ounce may be

taken by the adult, and one teaspoonful by a child three years old. It is very useful in "colds," indeed one of the best if not the very best remedy we have for domestic use, in that or the first stages of a *mild bronchitis.* It contains paregoric, wine of antimony, and sweet spirits of nitre.

LIME. This remedy (Calcium), made from burned then slaked limestone, depends for its medicinal values upon its alkalinity and its astringency. Lime-water is, as I have said, not a good means of rendering *milk* alkaline, for potassium is much more natural and better for this. For a most valuable use of lime-water, see *Carron oil.* The chloride of lime as a disinfectant is also spoken of elsewhere.

For internal use the lacto-phosphate of lime is by far the best form. For children it is best given as the syrup. This syrup of the lacto-phosphate of lime is well combined with cod-liver oil, and is then believed to assist in the digestion of the oil. The dose of the syrup plain for a child is one to two teaspoonsful, and may be continued for a long time. See Rickets. The physician should always be consulted in cases in which lime appears to be needed.

LIMES. These are small fruits of the West Indies similar in action and use to the lemon of temperate zones, but much smaller and of a more delicate flavor.

LINIMENTS. *Ammonia Liniment* is made of aqua ammonia, thirty parts, and cotton-seed oil, seventy parts. Or, it is sometimes made by adding two parts of olive oil to one part aqua ammonia. It is a most

excellent stimulating liniment, but has no other effect, except to be slightly antiseptic.

Camphor Liniment is made of camphor one part and olive oil six parts. Some make it of camphor one part and cotton-seed oil four parts.

Soap Liniment is made of soap, ten parts, camphor five parts, oil of rosemary one part, alcohol seventy parts, and water to one hundred parts. This is the "liquid opodeldoc" of our grandfather's day.

Chloroform Liniment is made of chloroform, two parts, and soap liniment three parts.

There really is not much difference in the action of the various liniments. They are all for the purpose of stimulating the circulation of the parts, and that means more blood to it, and that means absorption of any swellings, or rather the products of such swellings, which would become absorbed anyway in a short time. Liniments are no good at all for a fresh injury, but a sedative application, such as ice, lead-and-opium wash, hot water, evaporating lotion (water with a little whiskey in it), will do a good deal of good towards keeping down an excessive amount of swelling. After the first two days, if the inflammation has begun to subside, liniments will help a little.

LINSEED. See *Flaxseed.*

LIQUORS. "Waters" are for the most part aromatic solutions of the *volatile oils* of some one of the herbs used to flavor. In the strict medical sense the word *liquor* means *solution,* and does not convey any meaning of a spirituous liquor at all. Indeed it is quite

the contrary, for these aromatic liquors have not a drop of spirit in them. They are entirely *watery* solutions. Of those of the volatile oils we have *cinnamon water, rose water, peppermint water,* etc. They are simply aromatic waters, and have no medicinal value. Of the *Liquors* we have the *Liquor sodae chlorinata,* or Labarraque's solution, just described; *Liquor calcis* (lime-water); *Liquor potassae,* or solution of potash, etc. Any solution of a drug is or may be called a liquor, provided it is a perfect solution and is in plain *water.*

LITHIUM. We have very little real knowledge of just how lithium salts affect the system, but they seem to act much like the potash salts. It is claimed by some that they assist in the solution of certain excrementitious substances in gout and in rheumatism, but such claims are not proven.

The fact that lithates are part of the composition of renal calculi, and of bladder and gall-stones, when they are so, would seem to indicate that the lithium salts can be no necessary part of the animal economy.

LOBELIA. "Indian Tobacco." The leaves and tops of the herb are used. Lobelia is more of an *anti-spasmodic* than it is an expectorant or an emetic. Five to ten drops of the tincture act as an expectorant, but it is too prostrating to be permitted in any but the strongest cases, and there are less objectionable remedies which answer the same purpose. As an *emetic* for the adult half to one teaspoonful of the tincture, may be used, repeated if needed within thirty min-

utes, but here again the decided prostrating effect puts it out of the class with better emetics.

In the most stubborn paroxysms of *asthma* ten drops of the tincture repeated every half hour until vomiting is produced is justifiable, for the vomiting and prostration will do less harm than the asthma.

LOZENGES. This is a very effective way of giving some drugs, while in others it should be abandoned. *Cubeb* lozenges, much used by public speakers to stimulate a larynx too much relaxed from over-use or cold, are very appropriate so far as the form of the medicine is concerned, but *worm* lozenges, while not harmful in themselves, are liable to do harm by taking the place of a genuine worm powder which must in all cases be given *rightly,* that is, strong enough to do the work, and while the patient is fasting. See *Worms.* Otherwise no actual good is done in the way of relief, and the harm goes on.

LUNAR CAUSTIC, or nitrate of silver, is the mildest of all the caustics. When applied to living tissues it coagulates the albumen and forms a filmy coating over the surfaces which is not deep. See *Nitrate of Silver.*

LYCOPODIUM is a yellow dusting powder, sometimes called vegetable sulphur. It is mild and soothing, and is used to dust between the folds of the skin where there is too much moisture, as in the groin and arm-pits of babes.

MACE is the outer covering of nutmeg. It contains a volatile oil which is the same as that in the nutmeg.

MAGNESIA. There are two distinct kinds of this drug, the light and the heavy. The difference in manufacture and product depends upon whether precipitated from a strong or a weak solution of the carbonate of magnesium. The effect on the human system of both is the same, however, both being laxative and antacid. This laxative effect of magnesia depends upon the presence of acids in the intestinal canal, and is therefore especially useful in *acid dyspepsias.* But it is to be remembered that magnesia, unless it does induce action of the bowels, tends to collect, and may do harm. The harm would come only when it is continued for some time, which should therefore never be done.

One valuable use of magnesia is to mix a little of it with a child's milk, or give it with the nursing period, for the purpose of preventing formation of *curds,* hence preventing *colic.* The potassium salts will answer the same purpose. The Phillip's milk of magnesia is best for this.

Principal Advantages of Epsom Salts

Epsom salts is the sulphate of magnesia. It is popularly called "bitter salts." Its harsh action, as well as its disagreeable taste, limits the use of Epsom salts to the strongest persons, and when the most decided and prompt action is desired. It produces large watery evacuations, and hence may do well to follow after worm powders or other remedies when a pronounced action is required. A very valuable feature of the action of Epsom salts is that it increases the peristaltic movement of the bowel, which helps

materially as well as mechanically in the emptying-out process.

Liquor citrate of magnesia is a pleasant and effective physic, and is free from objection. A half or whole bottle may be taken at once, the smallest dose being a glassful for an adult. It tastes like lemonade, and is easy for children to take, a half glass being sufficient.

MALT EXTRACT, made from barley, is now put up by Squibb and other manufacturing chemists in such form as to be available for medicinal use. It is a tonic digestive, and when the digestion of starches is inadequate it is the best remedy to be obtained. It should be taken with the meal.

MENTHOL. This is a sort of camphor of peppermint. It is derived from the oil of peppermint, and, when rightly made, is free from either wax or thymol. It is applied externally to relieve pain, and as a local anesthetic. When so used it will often relieve headache or toothache. Internally it is sometimes taken in one-grain doses to check that kind of a diarrhea which is due to nervous states.

MIGRAINE TABLETS. These are among the most convenient and almost necessary additions to every household equipment. They will almost always relieve the distress of a headache and fever, and this whether the trouble be due to stomach disorder, to cold, or to nervous or other abnormal conditions. While they contain acetanilid, they contain also other ingredients which counteract its undesirable effects, and which

enchance its needed effects, so that they make a very valuable compound. Even a child, in the ephemeral fevers of childhood, takes them without injury. Sometimes for a small or weak child I break them and give half of one. They are most effective in breaking up a cold. They are perfectly safe, and there is not the slightest danger of a habit.

MILK. See chapter on *Foods.*

MILK-WEED. This valuable remedy is a sure cure for warts on the human being, just as black-strap molasses is on the horse. It may not be possible always to get it, but when available it is the simplest and best remedy. Apply the freshly expressed milk directly and freely to the wart once or twice at night. Then wait for the wart to disappear.

MOLASSES. Returning again to the subject of *laxatives,* here is a substance, and with *brown* sugar a class of substances which have the power of acting on the bowels in a more than merely mechanical way, i. e., of acting more like *cathartics.* It is a fact that molasses and brown sugar, taken either with the food or in the shape of foods made with them, have a decidedly laxative effect. The only difficulty is in a marked tendency also to ferment. But if reference be made to the subject of indigestion, the reader will find that there we mention the curative effect of blackstrap molasses. This class of foods seems to be good especially for persistent flatulence. Caution is offered that *some conditions* of flatulence, particularly those in which there is extreme acidity of the

intestinal canal, are probably not adapted to this cure. The inference is, however, that those subject to chronic constipation should use brown sugar instead of white, for it is found that neither white sugar nor sugar of milk has any such effect.

MONOBROMATED CAMPHOR. Camphor treated with bromine furnishes red crystals which, heated in a closed vessel, give hydrobromic acid and a compound called bromated camphor. This has some valuable physiological properties, among which are reduction of temperature and relief of spasm, or nervous irritation. The drug is therefore a valued and effective ingredient of the *migraine tablet,* mentioned above. It is useful also in neuralgias and the convulsions of teething, and in delirium tremens.

MONSEL'S SOLUTION is a solution of the subsulphate of iron, and is used chiefly for its powerful styptic effect, in the stoppage of bleeding. It is applied locally, and in its pure state. A serious objection to it is that it forms an ugly, clotted mass, from under which often the red blood still pours. Other local styptics have proven better.

MORPHINE is the chief alkaloid, or active principle of *opium.* It has the advantage of working singly, without the interference of other alkaloids or ingredients of opium, is less poisonous than some, and its dose is more accurately measured. For hypodermic use also it is the only one practicable. See Opium. Neither morphine nor any other preparation derived from opium is for household use.

MOUNTAIN BALM; Yerba Santa; or Consumptive's Weed, is good both for its property of masking the disagreeable taste of other drugs, and for its alterative, expectorant, and anti-catarrhal effects. It comes mostly from California and Mexico. The dried leaves are used, being carefully selected. A fluid extract and a syrup are made of them for use in lung diseases. The dose of the fluid extract is ten grains, and of the syrup is one teaspoonful. In chronic bronchitis, when consumption threatens, it is valuable, but must not be relied upon alone.

MUCILAGE ACACIA is a good demulcent and soothing mixture, especially valuable when there is extreme sensitiveness of an inflamed throat, and to take the more harsh and irritating remedies in. See Gum Arabic.

MULLED WINE is made by beating up an egg with two to three fluid ounces of sherry, then adding the same amount of boiling water. It was formerly a favorite way of taking egg and wine, as a substitute for egg-nogg, but of late the egg is taken with lemon juice as a more stimulating and less depressing way.

MURIATIC ACID in its concentrated form is a caustic and highly poisonous, but in the usual dilute form it is an exceedingly valuable remedy. It is the same acid that is often called *hydrochloric,* indeed the latter is the regular chemical name, and muriatic acid is the popular name.

The real acid is a gas, just as ammonia and chlorine gases are, and the liquid substances of com-

merce are in each case watery solutions of the gas. When heated, the solutions give up the gas. The hydrochloric or muriatic acid of commerce is made from *salt,* which is the cheapest of all forms of the *chlorides,* the chemical element which gives character to the acid.

The Normal Acid of the Stomach

An interesting thing about hydrochloric acid is that it is the *normal* acid of the stomach. It is always present in *free* form during digestion, and no stomach can do its work long or well without it. It does not appear to digest the food, at least only very few kinds of it, but its presence in the intestinal tract is known to stimulate the flow of the different digestive juices, especially the peptic and the bile, and still further to render easier their digestive action. When in any diseased condition the proportion of this acid becomes much less than normal, the system fails in nourishment, and we have to supply the acid artificially. Five to ten drops of the *dilute* muriatic acid in half a glass of water is often the very best remedy for stomach dyspepsia (working best when due to a deficiency of the acid of course), and as already stated, the night sweats of consumption are often cured by it. The reason of this is that the night sweats are generally due to stomach and bowel disorder.

Musk is derived from the glands of the musk deer, of Thibet. It is an anti-spasmodic, and is used in obstinate hiccough, as sometimes occurs in the low states of typhoid fever, or in ulcer of the stomach, also in

delirium tremens and in pneumonia when the nervous symptoms are out of proportion to the other symptoms. The average dose is from five to fifteen grains.

MUSTARD (Sinapis). White or black, either is the ground seeds of the plant. The black yields an oil, but the white does not. The oil is a most intense irritant, and if taken internally would constitute a powerful irritant poison. The black is much stronger than the white. When the dark colored ground mustard is used, if pure, it must be diluted with an equal quantity of flour. A small amount of white mustard ground and used as a condiment will help to stimulate the gastric secretions, and thus aid digestion, which, however, ought not to need it.

Best Way to Make Mustard Plasters

The main use of mustard in a medicinal way is by local application. The familiar and most valuable mustard plaster, may be made of either the black or white mustard, ground. It is always better to mix with about an equal quantity of flour, and then to mix with the white of an egg to prevent blistering. It is better to secure long-continued action of the mustard than it is to blister, unless for some unusual reason a blister is especially desired. Even then it is well to apply so that the treatment may be repeated in a short time, as for instance, first upon the front then upon the back of the chest, in order that the counter-irritant effect may be kept up pretty constantly.

This is the very best treatment for the first stages

of pneumonia or the beginning of an attack of bronchitis.

The other use of mustard has already been described, that is, its use as an emetic. Vomiting can quickly be brought about by large quantities of warm mustard water, and the assistance in washing out the stomach is also a great help. One teaspoonful of mustard, or even a half teaspoonful, in a cup of hot water, repeated in a few minutes if necessary, is safe and sure.

MUTTON TALLOW, like goose grease, makes an excellent base for salves because it does not tend to become rancid as quickly as other fats do. It has no other healing power.

MYRRH is an astringent emmenagogue and carminative. It is especially useful in the uterine disorders where there is also a complication of lung disease. Myrrh is used almost wholly in compounds, never by itself.

NIGHT SWEATS. I undertake to say that night sweats are things that *never ought to occur.* And I mean not only that the diseased conditions which make them possible ought not to be, but even with the disease, the system ought to be kept in such state that the body will not pour out its excretions this way. I have stated several times that when the alimentary canal is kept in proper condition, even with the disease in progress, the weakening and debilitating effort of the system to throw off its poisons which appear to us in the shape of night sweats will not be

necessary, and neither will it occur. I speak from many experiences, and many victories.

The Way to Cure Night Sweats

The way to cure night sweats is to help the system by cleaning it out and keeping it clean. I have stated that I have cured the trouble by no other means than merely washing out the stomach, which is a very significant statement. Nevertheless, this means will be impossible for many of my readers to secure, and as the night sweats themselves are depressing and weakening. I would not have anyone forget that the first thing is to clean out the whole alimentary canal, and this I would do by a few doses of calomel and soda as already recommended. Then a brisk cathartic, a glass of the liquor citrate of magnesia is best.

NITRE. Strictly speaking, nitre or saltpetre, is the *nitrate* of *potassium.* Most of that used in this country comes from Calcutta, in grass-cloth bags, which are delivered in Boston. The original source is always the animal and vegetable matters contained in saline earths, the organic matters being decomposed and nitric acid being formed by the oxidation of the ammonia. This is also the principle of "nitre-beds." Wood-ashes, old plaster rubbish, vegetable compounds, and other refuse decomposing free the nitre.

Another kind, not the true saltpetre, is the *nitrate of sodium,* or Chili saltpetre, in which the sodium content instead of the potassium has been supposed to be due to the lack of vegetable matters in that

region. Much of the nitric acid of commerce is made from it, and the true nitre may be made from it by treatment with crude potash.

Taken internally nitre is a decided irritant to the stomach and bowels, and when death has resulted, as has often been the case, these membranes were found to be intensely inflamed.

Not Desirable as a Diuretic

It is used as a diuretic, that is, to increase the flow of urine, but that use should be done away with. There are better remedies free from danger. When taken at all it should be very much diluted. Small doses are more likely to act as diaphoretic (i. e. cause sweating). Put half to one teaspoonful in a glass of water, one teaspoonful of the mixture to be taken every half hour. It will, if the room be warm, assist in producing sweating. As a diuretic, if used for that purpose at all, a tablespoonful should be put into a pint of barley water, or some softening drink, and taken in divided doses during the twenty-four hours. Better call the doctor.

NITRIC ACID is used as a local application chiefly for warts and venereal ulcers. It is a strong caustic, and must be kept from touching the surrounding skin. One or two applications of it direct to a wart is almost sure to make the wart disappear, and without leaving a sore place if the acid has not been put on too freely. It is a good plan to smear the surrounding skin with vaseline for protection.

NUMBER SIX is the old-fashioned remedy for stomach-ache. It is a combination of the tincture of capsicum

and myrrh, and has often been called "Hot Drops." The dose is fifteen to thirty drops in a little sweetened water.

NUTMEG has a medicinal value as well as a flavoring. It is used as an aromatic and carminative (i. e., gas-expelling). Nutmegs grow in the Islands of Sumatra and Java, and in the Molluccas, Penang, and Ceylon. The fruit is gathered from the tree by hand, and the outer covering or *mace* (which see), is carefully separated and dried in the sun for use. The kernel is then made to loosen itself by drying, inside the nut, and when loose the hull is removed and the kernel taken out whole. The Dutch used to bleach the kernels with lime to preserve them, but the Ceylon and Penang product which we get is not so treated.

Sometimes a species of adulteration is practiced on nutmegs, by boring the kernel then extracting the oil by boiling, after which the hole is plugged up so skilfully that it can not be easily detected. The nutmeg is thus deprived of its strength.

PAREGORIC contains opium in the proportion of two grains to the ounce. This is its chief ingredient, but others help in the conditions in which paregoric is desired. It is the one form of opium in which it may safely be given to children. The dose for children must not *exceed* one drop for each month of the age of a child under one year. A little less than this amount is always better, and then repeat if needed. There is no objection to giving paregoric in children's colic, simply to relieve the pain, but the trouble itself

ought to be relieved in other and more curative ways. For adults paregoric is also often used, as well as for children, in *cough mixtures.*

PARIS GREEN, or Schweinfurt Green, is a compound of the arsenite and acetate of copper, and contains fifty-eight per cent., by weight, of arsenious acid. It is so much used as an insecticide that it is important to keep in mind its poisonous character.

PARIS RED is the red sulphide of mercury, or vermilion, or artificial cinnabar. Used for technical purposes, rarely in medicine.

PARSLEY. The root of the common parsley contains a medicinal principle called *Apiol,* which is gaining a reputation as an emmenagogue. This principle, on account of its disagreeable taste, is generally administered in capsules, each of which contains about four grains. These can be purchased anywhere, and are quite effective in painful menstruation, and in neuralgias.

PEPPER. The black is much stronger than the white. They are both from the same plant, but the black seeds are the unripe berries, while the white are the ripe, stripped of their skins and dried. An active principle is derived from pepper for use in medicine, and is called piperin. It is useful in atonic dyspepsia, and in chronic malarial fevers.

PEPPERMINT. The essence is a very valuable carminative (gas-expeller), but when combined with soda in the form of the "soda-mint tablets" is I think, liable to be useless and disappointing.

PEPSIN. I have already spoken in another part of this work, of the pepsin ferment. This principle, derived from the stomachs of recently-slain animals, is at first in liquid form, and to put it into powder requires a large amount of starch or whatever is used. The liquid essence, free from any spirits, for the reason that they would prevent its action, should be used.

Properties of Peptonized Foods

Pepsin and peptonized foods are especially valuable in those conditions wherein there is deficiency of gastric juice. Such are sometimes the cases of young children and infants, and chronic and very long-standing gastric catarrh of adults. When the mucous membrane has been deranged for a long time the peptic glands become obliterated, and the digestive powers of the stomach are so far impaired that artificial help may be needed. In those cases pepsin should be taken *with* the food, and in large quantities. Much difference is found in the different specimens of the drug, so that the manufacture is important. The pepsin ferment must be preserved. It is safest always to give with it a few drops of dilute hydrochloric acid in water.

PEPTONIZED BEEF TEA is made by simmering half a pound of beef, finely minced, for two hours in a pint of water to which has been added twenty grains of soda, cooling to lukewarm, adding a tablespoonful of essence of pepsin or liquor pancreaticus, letting stand at even temperature for three hours, then bringing to the boiling point. This is very excellent digested protein food.

PEPTONIZED MILK is made by adding to one pint of milk one-fourth of a pint of water, heating to about 140° F., letting it stand at this temperature for an hour to an hour and a half after first having added 20 grains of soda and two teaspoonsful of essence of pepsin or liquor pancreaticus, then bringing momentarily to the boiling point.

PEPTONIZED MILK GRUEL is made in much the same way. The gruel is first made with arrow-root or oatmeal, an equal amount of milk is added while the gruel is hot, so that the mixture stands at about 125° F., twenty grains of soda and two teaspoonsful of the digesting liquor to the pint of the gruel are to be added, digestion in a warm place for two hours is permitted, then the mixture is boiled and strained.

PERMANGANATE OF POTASH is an *oxidising* disinfectant and deodorizer. It acts by giving up some of its own oxygen. But it is bland and effective, and hence is much used. It is especially valuable as a wash for old ulcers. To relieve the odor of *sweating feet* or of the groin or flexor surfaces of the body, the arm-pits, etc., there is nothing better. Its one drawback is that it stains hands and clothing. Soap will increase such stains, but a weak solution of oxalic acid will remove them. They will soon evaporate themselves if left alone and if no soap is used.

POTASH. Different salts of potash are used to increase the flow of urine, except the *caustic potash*. The bi-tartrate of potash is the familiar cream of tartar. The citrate I have described as entering into the

effervescing draught. The bi-carbonate of potash is the valuable alkaline salt for milk.

PUMPKIN SEEDS. The sovereign home remedy for *tape-worm,* which see.

PYRETHRUM, or Pellitory is an herb retained on the medicine list merely for chewing when the throat is sore and the uvula relaxed. It will sometimes relieve toothache when chewed. It stimulates the flow of saliva.

QUASSIA. This is a bitter wood, the purest of all the stomachic bitters. The infusion is sometimes used as an injection for the seat-worms of children, or a solution of santonine may be used for the same purpose. Cups are made of the wood, drinking out of which one gets the bitter principle of the wood.

QUINCE SEED. The seeds of quince yield a mucilage which is an excellent demulcent for the skin and chapped hands.

QUININE is one of the alkaloids of Cinchona or Peruvian bark. It is too familiar to need description. Quinine is a specific against malaria, but so far as known this constitutes its only especial use. It is not used as much for a simple tonic as it formerly was.

There are two ways of giving quinine in malarial fever. One, and a very good way, is to begin six or eight hours before the chill is due, and give two or three grains every two hours until the chill begins. After about the second period the chill will be lighter, and will soon be found to be under control. None at all is taken on the "well day." Another very good

plan is to take one large dose of ten or fifteen grains just as the chill gives its signs of approach. When there is no chill the arsenate of quinine is better. It is given one grain during the twenty-four hours, in broken doses. Quinine should always be given in solution or powder, never in pill form, as there is usually doubt about their solubility.

RED PRECIPITATE is the red oxide of mercury.

RED SAUNDERS is merely a coloring agent. It is the heartwood of the red Santal. Alcohol will extract the color, but water will not.

RENNET is derived easily from the dried stomach of a calf. Squibb now puts out a ferment of the same character and derivation, called *Rennin,* which is better on account of its more careful preparation. One part of it added to 15,000 parts of fresh cow's milk and brought to near the boiling point is guaranteed to produce a fine curd in five minutes. Of this is made a liquid rennet, essence of pepsin, etc.

ROSIN (Resin), is the residue left after distilling the volatile spirit from turpentine. It is soluble in turpentine and in sodium and potassium solutions.

RHUBARB has until recently come mostly from Tartary, a superior product being brought through Russia, and called Russian rhubarb, and an inferior kind which has failed to pass inspection on the Russian frontier being sold into the markets through China, and known as Chinese rhubarb. The former kind was easily told by the fact that the roots were pared, and contained a conical hole made to the center by in-

spectors. The latter was scraped and often perforated clear through. Now much of what we use comes from Europe. Rhubarb root is an antacid, bitter tonic, stomachic, and cathartic. The best root now obtainable is the Shensi root, and is not sawed or cut into regular shapes, but left the natural shape of the root. I describe it thus carefully because many people purchase the native root and use it either to steep and use as a tea, or to chew the dried root as a laxative.

The Best Form of Rhubarb

The tincture, the fluid extract, and even the syrup make rather harsh mixtures, however, and the better way to get it for home use is in the form *the Aromatic Syrup of Rhubarb*. This preparation has combined with the syrup small portions of the aromatic tincture of rhubarb, and is a more gentle laxative and antacid. Another excellent, and possibly better home remedy of this class is the *Neutralizing Cordial,* or compound syrup of rhubarb and potassa. It contains hydrastis and potassium carbonate, with aromatics, and is a thoroughly good remedy in the acid diarrheas of children, in one to two teaspoonful doses, also for acid dyspepsias of adults. It is a mild laxative.

ROCHELLE SALT is a tartrate of sodium and potassium. Its appearance is familiar to all. It is a good saline laxative, taken in half to one teaspoonful dose before breakfast, and an active physic in a tablespoonful dose for an adult. The protracted use of any such cathartic, however, is not to be recommended. Rochelle is not as harsh in its action as Epsom or "bitter salts" and for most cases is to be preferred, when a saline

cathartic is needed. The saline cathartic is generally better than castor oil, for its action is more thorough.

ROSE-WATER. This delightful flavor is prepared from the Pale Rose. The oil is secured, and from this is made the rose-water. It is the most evident ingredient of *cold cream,* or *ointment of rose-water.*

RUBBER (Caoutchouc) is derived from the milk-juice of the rubber tree, or *Hevea brasiliensis,* and possibly other species of *Hevea.*

RUBUS, or Blackberry root, is an astringent tonic, used chiefly in diarrhea.

RUSSIAN BATH (Steam bath). See chapter on *The Uses of Heat and Cold.*

SAFFRON is found to have no medicinal value, and is no longer used in medicine.

SAGE, on the other hand, has been proven to be a mild astringent and antiseptic, and is used sometimes as an application in sore throat.

SAL AMMONIAC is the muriate of ammonia, which see.

SALT is the *chloride of sodium.* It is a constituent of all kinds of food, and is essential to the life of animals. There are three sources of salt: sea-water, natural mineral beds, and springs and wells of saline waters. When pure enough it is mined like rock, but when too much mixed with earth and impurities, water is pumped into the mines, and when saturated is pumped out again and evaporated, leaving the salt dry. It is then refined, and is ready for the market. What makes salt go solid is the presence of a small proportion of magnesium chloride, which also gives it a

slightly bitter taste. A certain amount of salt is good for the digestion.

SALT OF LEMON. See Lemon, Salts of.

SALTPETRE. See Nitre.

SALVE, MOTHER'S. Brown Ointment. Manufactured by Squibb. Good in inflammation and said to be good in felons. Takes out the pain and heat, and reduces the swelling.

SARSAPARILLA, which comes from Honduras and Brazil, has both an alterative and a slightly tonic effect. Yet its chief use is as a flavoring and vehicle for other and stronger remedies.

SASSAFRAS, besides being an alterative, is somewhat astringent.

SCHEELE'S GREEN is the arsenite of copper, and contains fifty-five per cent. by weight, of arsenious acid. The use of this coloring for wall-papers, for wrappings and fancy paper, and even for sweets, should be prohibited by law for fatal results are sometimes caused by them.

SEIDLITZ POWDERS. Each powder consists of two papers, one of which contains thirty-five grains of tartaric acid, and is usually white; the other, usually blue, contains 120 grains of Rochelle salt and forty grains of bicarbonate of sodium mixed together. They are to be dissolved in separate glasses partly full of water and then poured together and drunk during effervescence. They make a very mild and excellent physic.

SENEGA. (Snakeroot, dried.) Its effect upon the sys-

tem is that of an expectorant, a diuretic, alterative. It is used for the latter purpose in rheumatism. As an expectorant the syrup is generally used in half to one teaspoonful doses, and it is one of the best of remedies to loosen up a cough.

SENNA is the good old physic, pure and simple, having no particular tonic effect as cascara has, but being more active and making a most valuable adjuvant to that drug. It has no special action on the liver, but merely empties the bowel. It gripes to some extent, and therefore should never be given without soda, or some such means to prevent griping. It is very active, and is especially so with Epsom salts in the form of *black draught.*

SERUMS. The most powerful and revolutionary of all new remedies are the antitoxins. They are taking the place of older remedies as fast as the particular ones for each disease are discovered and prepared for use by physicians generally and in private practice. They are both safe and efficient, but in order to be the latter they must be administered *in time* to be effective. They differ somewhat in this respect. The public should not be afraid of them, but should welcome their use when needed, as they are by far the surest and quickest, as well as the cheapest cure, although the one or two doses often seem very expensive.

SILVER NITRATE. See *Nitrate of Silver.*

SIMPLE BITTERS. The bitter herbs are all stomachic and tonic. They appear all to act about alike, but

they are all slightly *irritant,* and for this reason should be avoided when the stomach is in a highly sensitive state, as it always is in acute gastritis. This applies to all the bitters, gentian, cinchona, and all the rest.

SLIPPERY ELM. While good to make soothing poultices of, slippery elm is still more valuable as a demulcent drink. In inflammations of the throat and of the intestines it is both soothing and has an excellent laxative effect.

SOAP, CASTILE. Castile soap is made of caustic soda and olive oil. It is not especially healing, as has been claimed by many of the laity, but may be used to soften adherent discharges and to cleanse foul surfaces.

Good soap is healthy for the skin, though cleanliness is not always as essential to the healthy state of the integument as it is to the *beauty* of it. But soap that is too harsh, or too coarse, will quickly injure the skin. For the toilet and the bath the finest of soaps should therefore be chosen. (See also *Skin,* Care of).

Choosing the Soap for the Toilet

It is so much easier and cheaper nowadays to buy good soaps than to make them, that we shall not attempt to give formulas for soap-making. But a word about the character of the soap to be chosen for the toilet and the bath may be appropriate. As almond oil and almond meal are among the most soothing and least irritating of all substances used on the skin, the almond soaps are also among the best. Castile soap is good because made of olive oil,

one of the least irritating of fats, and one which does not readily become rancid. For the same reason wool soap, or any soap made from wool fats is excellent.

Those which contain rosin, or the "cold process" soaps made from caustic alkalies, the chemical affinity of which is not satisfied, so that they act too harshly upon the skin, are not advisable. The milder soaps cleanse just as well, and in the long run better because they do not roughen the skin. Oatmeal soap is bland and soothing. Palm oil soap, when made of a cheap palm oil, is crude, but the higher-priced is excellent. It may be set down as a rule that the cheaper soaps are too harsh to be good for the skin. A pinch of powdered borax added to the bath will help much, and will make the skin clean and free from that greasy feel left by many soaps.

If an Antiseptic Soap Is Desired

In the so-called antiseptic soaps there is not usually enough of the antiseptic to be of any use. If antiseptic effect is desired some one of the liquid soaps to be had at the drug store is necessary. Creolin, which makes a milky mixture, is very good. Any one of these liquid antiseptic soaps will relieve a foul sore of its odor in a few washings if thoroughly used. *Green* soap was formerly imported from Germany, the green tint being due to the vegetable oils used in its manufacture. These oils are not used to make the article sold in this country, but the coloring is added to keep up the imitation. The latter is not antiseptic.

SOAP BARK, *or* PANAMA BARK is an expectorant in ten-grain doses, and is also a good destroyer of skin parasites. For this purpose it is used in the form of a strong wash.

SODA is found in nature in great abundance and in many compounds. The most usual is *common salt,* which is a compound of sodium and chlorine, or the *chloride of sodium.* This is taken from the beds of the native mineral, from saline springs, and from sea-water.

SODA, CARBONATE OF, is used in the manufacture of *baking soda,* which see, also in many ways in the arts. In cooking, the *bicarbonate* is the compound used, and this is not for the soda element, as is generally supposed, but for the carbon dioxide which it contains and sets free. Washing soda is the sodium *sulphate. Borax* is the diborate, or, as it is sometimes called, the *biborate* of soda.

SODA-MINT tablets are a mixture of soda and spearmint. The mint has no particular medicinal value.

SODIUM BENZOATE. This drug has been widely discussed of late as a food preservative. Dr. Wiley's experiments to determine whether or not the drug is harmful to the system are valuable, but after all, that is not the real question. The real fact is that meats and other foods which contain benzoate of sodium are therefore admittedly *not fresh.* If the benzoate of sodium could actually preserve foods from *any kind* of degenerative changes, as, for instance, cold does, it might be called a preservative. But it does not. It is only a partial detergent, and its presence in any

food means that that food is not fresh, and should not therefore be used.

SODIUM BORATE AND BIBORATE. See *Borax.*

SODIUM GLYCOCHOLATE is the normal sodium found in the *liver.* It is believed that when it is *deficient* gall-stones result. It is therefore given in five-grain and ten-grain doses to assist in dissolving gall-stones, and especially to prevent the formation of others after some have been found to be present and to have passed out.

SODIUM HYDROXIDE, OR CAUSTIC SODA is made from the carbonate, by treating it while in solution in boiling water, with the milk of lime. The lime extracts the carbonate and leaves a dense liquor which is cooled and used in making *soaps.*

SODIUM PHOSPHATE when pure and free from arsenic is a useful drug when a laxative is needed which stimulates the liver. It is used much in biliousness. It must be kept in well-stoppered bottles, and in a cool place. The average dose is half a teaspoonful of the salt. It is usually dissolved in water. The cathartic dose is a tablespoonful. But the smaller dose taken once or twice a day is usually sufficient to increase the activity of the liver.

SODIUM SALICYLATE is the compound used in rheumatic conditions. It has a disagreeable taste and is likely to disagree with the stomach. If this latter effect is very marked the drug may do harm instead of good. The syrup of ginger is a good medium for administering the drug. The dose is ten grains, for a

strong adult. Half that sized dose continued for some time may be a better plan. It must be given until the rheumatic inflammation subsides. Twice a week the alimentary canal should be well cleaned out. If rightly given it will control both the pain and fever of rheumatism, and the pain of neuralgia when due to gouty or rheumatic diathesis. Such conditions as this, however, require the attention of a physician.

SODIUM SUCCINATE is a compound made of sodium and succinic acid, and is used in the conditions just named, also in all forms of catarrhal jaundice, for the purpose of liquefying the bile and stimulating its flow.

SODIUM SULPHITE is used in bleaching lard, and in various other similar ways in the manufactories.

SOLUTION ANTISEPTIC, or Antiseptic Liquor, as prepared by Squibb, is a powerful and harmless and generally useful antiseptic adapted to whatever purpose any disinfectant is. It is newly official in the United States Pharmacopeia. The strength of its different ingredients is as follows: Boric acid, 2 per cent.; benzoic acid and thymol each one-tenth of one per cent.; and these are added to alcohol and water, with an admixture of eucalyptol and the oils of peppermint, gaultheria and thyme sufficient to give perfume. It serves the same purposes as listerine, and is cheaper. One teaspoonful of it added to half an ounce of water makes the strength sufficient for use. This preparation can be purchased at most any drug

store. It is much better to purchase and use this well-known mixture than to rely upon listerine or any secret remedy.

SOLUTION CRESOL COMPOUND, or Liquid Soap (newly official), also takes the place of Lysol as an antiseptic liquid soap and is non-proprietary and much cheaper.

The solution for use is made by adding a teaspoonful of the cresol compound first dissolved in a little hot water, to a pint of water. This solution does not injure the vessels and instruments as bichloride solutions do.

SPANISH FLIES. This somewhat peculiar remedy is the ground-up carcasses of the *Cantharis vesicatoria,* a beetle found in Southern Europe and coming into commerce through Spain. The beetle is from half an inch to nearly an inch in length, and has large heart-shaped head and brilliant metallic-green wing-cases. In the cool of the morning when the beetles are stupid with cold, and sometimes after smoking with burning brimstone, they are collected during the months of June and July, and swept into sheets. To kill and preserve them they are dipped into hot vinegar.

They yield a medicinal principle called *cantharidin,* which is intensely irritating to either the skin or to the mucous membranes with which it comes into contact. Taken into the system this substance is eliminated by the kidneys, upon which it produces a decided irritant effect, and in overdoses intense

inflammation and strangury. This action is useful in very mild degree in some conditions, but spanish flies used in this way should always be applied under the direction of a physician.

Its counter-irritant effect is valuable, as it produces a blister when applied to the skin, more promptly than any other remedy. The prepared plaster can be purchased at any drug store in squares any size wanted. To apply it, first anoint the plaster or the skin with a little oil, which makes it act better. Leave for only a few minutes, then remove to another spot if larger or repeated blisters are desired.

SPEARMINT, or Mentha viridis, has no medicinal value except as a flavor.

SPERMACETI, as an emollient, derives its chief value from the fact that it lends a firmer and more durable consistence to "creams" and ointments of all kinds. It is one of the staying ingredients of cold cream, which is used more than any other similar substance except glycerine.

SPICE PLASTERS are used when a steady, continuous, mild impression is wanted, as in certain abdominal complaints. Any druggist can prepare one according to the following formula: Take one teaspoonful of Cayenne pepper, and one tablespoonful each of ground ginger, cloves, cinnamon, and allspice; mix them thoroughly together, and moisten with the white of an egg, then put into a flannel or cotton bag, "quilting" it in so as to hold the powder in place, or moisten with alcohol or whisky after sticking it into

the bag, and apply. It will not blister, and can be left on for some hours.

SPIRIT AMMONIA AROMATIC. This most valuable, because safe and certain, of all the heart and brain stimulants, as well as stimulants to the respiration, is made up of the carbonate of ammonia, four parts in a hundred; aqua ammonia ten parts in a hundred; and oils of lemon, lavender flowers, and allspice to flavor. Even the vapor when inhaled is stimulating. It does not produce any narcotic or depressing effect as whiskey or any other kind of liquor does.

The dose is from twenty drops to one teaspoonful, and may be repeated frequently, if needed. It acts quickly because very volatile.

It is to be remembered in all cases of using stimulants, especially when the brain and central nervous system are affected, that the stimulants are not to be pushed beyond the amount necesary to overcome the shock or depression, from whatever cause, as the effect would be to make the reactionary fever or excitement run higher. This ammonia does as well as the aqua ammonia to rub on the stings of insects, and for itching, but is more expensive.

SPIRIT AETHERIS NITROSI. SPIRIT NITRE DULCE. See Sweet Spirits of Nitre.

SPIRIT ETHER COMPOUND, or *Hoffman's Anodyne,* is made of alcohol one pint, ether half a pint, and etherial oil six fluid drachms. It is a strong carminative, and is often used in doses of one and even two teaspoonsful in cold water, for colicky pains in the

stomach and bowels. Aside from the ether, however, it is a powerful depressent, and is distinctly contra-indicated in intestinal disorders, because of the action of the alcoholic ingredient in dilating the blood-vessels of the abdominal cavity, and hence increasing any congestion present. The real truth concerning this remedy is that other remedies which do the same work and do not produce the same undesirable and positively injurious effects are much to be preferred.

SPIRITS OF CAMPHOR, or Tincture of Camphor, is used internally for its anti-spasmodic effect, in dysmenorrhoea, in colic, in dysentery to relieve the griping and tenesmus, and in hysteria and all forms of nervousness. When locally applied for headache it is good for only its counter-irritant effect.

SPIRIT FRUMENTI (whiskey), and SPIRIT VINI GALLICI (brandy) are more fully treated in the chapter on the effects of alcohol.

SPIRITS OF MINDERERIS is made by saturating dilute acetic acid with the carbonate of ammonia, so that a solution of the acetate of ammonia results, with a certain amount of carbonic acid gas. Its effect is to produce sweating in a mild degree. It is used a good deal in dysmenorrhoea. Also in attacks of common "cold," in which it is usually combined with a little nitre. The dose is one teaspoonful of this spirit to which is added three to five drops of sweet spirit of nitre. This, with a warm room, and frequent dose, is an excellent way to break up a cold. It is used only under the doctor's orders.

SQUILL. In the form of the compound syrup of squill, or "Hive syrup," this is a common household remedy. It has won its common name from its use in *hives,* in which it cures by producing vomiting in those cases where the eruption is due to fermentation or some disorder of the bowels. There are, however, other remedies, such as the syrup or the wine of ipecac, better for this purpose than hive syrup, for the reason that the squill ingredient in an overdose produces colicky pains and purging. Hive syrup contains a poison, tartar emetic.

The best effect of squill is its action on the kidneys, as a diuretic, but being an irritant it should never be used in cases where there is any inflammation of the kidneys. It is valuable as a diuretic in the hands of physicians only, in dropsy from *heart-disease,* especially so when combined with a little digitalis. But in *Bright's* disease, it should never be used. The dose of the syrup is one-half teaspoonful.

ST. IGNATIUS BEANS come from the Philippines, and are about equal in effect to nux vomica. They possess no known value which is not also the more accurately and readily found in strychnine, the alkaloid of nux vomica.

STICKING PLASTER, made of lead plaster and rosin, was formerly used in surgery as a protective dressing, but its use has been supplanted by the less objectionable and much more useful Rubber Adhesive Plaster. See Surgical Dressings.

STOMACH TABLETS. Squibbs have devised a formula

for the manufacture of a kind of tablets which have a most quieting and grateful effect on the stomach, and usually check vomiting and pain, whether due to inflammation or to nervous disturbance, as in sea-sickness. They often relieve the vomiting of pregnancy also. Enquire at drug store for Squibb's Nausea Tablets. The dose is two tablets, to be followed by another one hour later if needed.

STRAMONIUM, or Jamestown Weed, or Jimson Weed, is the one active ingredient of most of the asthma powders, which are for burning and inhaling the fumes. It has an anti-spasmodic effect like belladonna. It also acts somewhat like belladonna in enlarging the pupil of the eye.

STRYCHNINE. This highly poisonous drug is the alkaloid of nux vomica, from which it is derived. But while a rank poison in large doses, yet, as is well known to the older ones of my readers, strychnine is a most valuable drug in small doses. The average dose for an adult is one-sixtieth to one-thirtieth of a grain, and the tablets are usually most accurately made and each contains a definite amount, according to the size stated on the bottle.

The Three Effects of Strychnine

Strychnine has three distinct actions. It is a direct tonic to the nerve tissues, and is therefore useful in states of nerve debility; it is a stomachic, giving tone to the walls of the stomach, and is therefore useful when the stomach is flabby and dilated and digestion is slow; and it also is a most valuable heart *tonic,* rather than a heart *stimulant,* serving to hold and

maintain a failing pulse, rather than to excite its return to activity after the heart has once failed. In stomach troubles its use is therefore limited to the very few cases characterized by the term "atonic dyspepsia," and is distinctly contra-indicated in nervous dyspepsia. In shock and momentary heart-failure from any cause, or to stay the heart's action for any ordeal, it is most valuable of all drugs. Never use or give strychnine without definite and express directions from your physician.

SUGAR OF LEAD, or lead acetate, is a violent poison. See *Poisons and Antidotes.*

SUGAR OF MILK. The opinion as to the constipating effect of this form of sugar is based upon the fact that milk is one of the most constipating of all foods. Besides, the sugar of milk of commerce is said to be largely a manufactured article made in devious ways and uncertain as to purity. If any is used to sweeten the baby's milk, that made by E. R. Squibb and Sons should be purchased, because of its purity.

SUGARS. *Brown* Sugar has a definite laxative power. Like molasses, it serves to intensify intestinal action. It is likely that white sugar has no such effect. Milk sugar is probably inert in this respect, or possibly constipating. In considering the use of molasses and brown sugar for this effect, we must not forget the tendency of all sugars to produce fermentation in the bowels.

SULFONAL is a newly official drug, used for the sole purpose of producing sleep and rest in nervous distur-

bances. It is a useful remedy in the hands of the physician, but is not safe nor suitable for household use.

SULPHUR. When applied to the skin, sulphur has almost no effect whatever on the skin itself, but is most valuable as a parasiticide. It is especially useful in destroying the itch-mite. Taken internally, it is partially dissolved in the alkaline intestinal juices and absorbed. Used in this manner its most valuable action is that of a *laxative*. Mixed with an equal amount of cream of tartar, as already suggested, and rubbed into a paste with simple sugar syrup, or with honey, and taken in doses of from one teaspoonful for a child to one tablespoonful for an adult, at bed time, it is a most excellent laxative. It has also an almost specific action on the blood-vessels of the bowel, causing them to contract, and often curing completely an attack of *piles,* when that trouble is not of too long standing. It also has a great reputation for the cure of chronic rheumatism, when taken internally, a use which I have never made of it.

SULPHURIC ACID is the great stand-by of the chemist. He uses it more than any other one substance. It is to chemistry what iron is to mechanical industry and the builder's art. It is made on a very large scale by the process of oxidizing sulphur dioxide in the presence of moisture.

It is sometimes called in common parlance the "oil of vitriol." In the form of the aromatic sulphuric acid it is used in medicine in small doses, to relieve

the severe night sweats of consumption, and in diarrheas.

SULPHUROUS ACID is the very effective form of the vapor of sulphur obtained by burning the sulphur in the familiar way for fumigation. It is perhaps the safest and most destructive to insect and germ life of all the means of fumigation, unless it be formaldehyde, which is less convenient and more expensive.

SULPHUR PRECIPITATED is the light yellow "milk of sulphur." It is the kind used generally in laxative mixtures for internal purposes.

SULPHUR SUBLIMED, or "flowers of sulphur" is the darker yellow, or powdered sulphur, the same as the brimstone sticks, and is used more to make applications for the skin.

SUMACH. (Rhus glabra.) The berries yield an astringent fluid extract which is used as a gargle, generally combined with chlorate of potash. The remedy is not used internally.

SUPPOSITORIES. These are conical-shaped compounds of drugs with cacao butter or some similar fat which melts readily, devised for giving medicines by the bowel. They are very useful means, sometimes, when for instance the stomach cannot retain the medicines. Almost any kind of medicine can be given in this way, and will readily become absorbed and the entire system will get the effect. For giving medicines for piles, especially those which contain some astringent designed for purely local effect, this method is useful.

SUPPOSITORIES, GLYCERINE. These are small cones

made of pure glycerine, and are very useful for quick and harmless action. They must be kept in their bottle and not held in the hand, as they melt quickly at the warmth of the body. For use I find it best to split one lengthwise into four quarters, for one-quarter acts as well and is quite sufficient. Insert one such piece into the child's rectum, and the bowels will move in a very few minutes. It must be taken up either with pincers or between folds of paper, and can be inserted without the slightest pain to the child and very easily. Then keep it in place for a moment. The bottle containing them must be kept in a cool place. This method is a thousand times better than using an injection for a child under ordinary circumstances.

SWEET SPIRITS OF NITRE. (Spirits of nitre dulce.) When it is desired to produce sweating the sweet spirits of nitre is one of the best of remedies, but it must be given for this purpose in very small doses, and best diluted with water. The dose should be repeated every few minutes, and the body kept warm. As a remedy to act on the kidneys, nitre should be used with great care. It is necessary to give it in larger doses, at least a teaspoonful, and the diuretic action will be better if the body is kept cool. This use of the drug is to be made only by physicians.

For the sweating effect, one teaspoonful added to half a glass of water and sipped, or a teaspoonful taken every fifteen minutes is the best way.

SYRUP OF GINGER has a good effect on the stomach,

besides being a valuable means of disguising the taste of disagreeable drugs. Its effect is that of a stomach stimulant.

SYRUP OF HYPOPHOSPHITES COMPOUND. This very common and familiar remedy has a well-earned reputation in the scrofulous states of the children of consumptive parents, or those children which have developed a tendency toward tuberculosis. Like the syrup of lime it must be given for a long time, so that the nourishment of the tissues may be deeply affected by it. It is excellent in all cases of disease of the bones in children. It contains also a little iron, enough to gradually enrich the blood. The dose is one teaspoonful three times a day for a child six or seven years old, when ordered by the attending physician.

SYRUP OF IPECAC. This or some similar mixture like the wine of ipecac should be kept in every house where there are children, because it occasionally becomes necessary to cause a child to vomit and this is the best and safest means of bringing it about. It is much to be preferred to hive syrup for reasons already stated. The wine and the syrup are about the same strength. The dose of each to loosen a cough or relieve a sore throat or to break up a cold is about fifteen drops repeated every hour. The dose to produce vomiting is one to two teaspoonsful repeated every fifteen or twenty minutes until the vomiting begins.

SYRUP OF THE IODIDE OF IRON. I have spoken else-

where of this remedy, in connection with the subject of tonsilitis and sore throat, but any word about it would bear repeating on account of the splendid efficiency of the remedy.

It contains 5 per cent. ferrous or iron iodide. That means that there is enough iron in it to soon supply the needs of the system of a child. Most children with chronic tonsilitis soon become anemic and suffer from this cause the more on account of the poor aeration of the blood. A child who breathes through his mouth *always* needs attention of a physician. The habit also needs correction by careful training. The dose of the syrup is three to ten drops in a teaspoonful of simple syrup thrice daily. Care must be taken to see that the teeth are properly rinsed after it has been taken.

This remedy also works slowly and requires a long time to do good, but the benefit is radical, and not one such dose will be taken by a child without doing its modicum of good. Let the doctor decide when and how long to give it.

SYRUP OF THE LACTOPHOSPHATE OF LIME. I have taken occasion elsewhere to describe the action of this valuable remedy in the rickets of childhood. Its good effects when given for a long time are hardly to be over-estimated. It has a powerful effect on the nutrition of the body, especially on the nerve cells, and helps to build up the system generally. Whenever a child shows failing nourishment it is safe to administer it. The dose is one to two teaspoonsful

three times a day, but is to be given only under orders from a physician.

SYRUP RHUBARB AROMATIC. See Rhubarb.

SYRUP WHITE PINE COMPOUND. This syrup, containing white pine bark, wild cherry, spikenard, balm of gilead buds, bloodroot, chloroform, sassafras, and a small amount of morphine sulphate, is a most valuable expectorant and cough sedative for children or adults. Dose fifteen drops to a teaspoonful diluted in water, and repeated every two or three hours. Good also in chronic coughs.

TALCUM, Soapstone, or French Chalk is a silicate of magnesium. It is employed in the arts as a clarifying agent.

TALCUM TOILET POWDER. For domestic use many preparations of this powder are sold, some of them containing too many impurities and too great an excess of alkalies or of rancid perfume oils. It is well worth while to purchase the best of these preparations, inasmuch as there is such great difference in the manufacture. The surest and most reliable is that prepared by Squibbs. It is sold only at the drug stores. It is perfectly pure, non-irritating and absorbent, and is the only kind to be used in the nursery.

TAMARINDS are tropical laxative fruits, used sometimes to make flavoring extracts, and for wines. Tamarind is an ingredient of the confection of senna.

TANNIC ACID, OR TANNIN, represents the vegetable astringents. It is an ingredient of oak bark, nutgalls, rhatany, kino, etc., valuable when desired, but

very much in the way when astringents are not wanted, as in the favorite beverage, tea. These astringent properties are decidedly useful as a local application in flabby states of the mucous membranes, such as piles, external and internal, atonic dyspepsia, sweating and tender feet, sore nipples, and the like, the effect being local in each case. It is used a good deal as a local application in glycerine for the relaxed conditions of the membranes and vaginal walls which are common in some forms of female weakness.

To get the tannin or astringent principle out of any herb, such as white oak bark all that is necessary is to boil it from a few minutes to an hour. This makes a good wash for tender feet, etc.

TANSY. This is the common tansy of the gardens, and is sometimes used in the form of a tea to bring on the menstrual periods, but is an unsafe remedy. Large doses cause abdominal pain, vomiting, convulsions and loss of consciousness.

TAR is one of the familiar remedies for cough, and has real value. It contains creosote, but authorities agree that creosote is not the only valuable ingredient of tar. In chronic bronchitis, or in the advanced stages of acute bronchitis, it is a most useful stimulant expectorant. The syrup of tar is the best preparation for internal use, having a bland and soothing effect. In chronic inflammations of the skin, also, tar is one of the best of remedies. It is made into an ointment of the strength of about one part tar to

three parts vaseline or any convenient form of fat. Wool-fat, or lanoline is one of the best excipients.

TARTAR EMETIC, as an *emetic* is best given for household use in the form of the *compound syrup of squills,* which contains tartar emetic in the strength of one grain to the ounce of the syrup. The dose is therefore fifteen to thirty drops (one-fourth to one-half teaspoonful). But tartar emetic, as I have already stated, is not a good emetic, for the reason that it is slow in its action, and then keeps up the vomiting for some time after the stomach has been emptied. The feeling of nausea or sickness all over the body is sometimes intense. The drug is depressing also. For these reasons this remedy is seldom used when any other can be had. It is used only under the doctor's directions.

As a *diaphoretic,* that is, to produce *sweating* and break up a cold, and loosen a cough, and relieve a tight bronchitis, hive syrup in very small doses, not enough to cause sickness at the stomach, is a useful remedy. The dose of the hive syrup, or compound syrup of squill, the only compound in which tartar emetic is permissible in the home, is five to fifteen drops. It is not used at all for persons whose vitality is low.

As an *arterial sedative,* that is, when the fever is high and the face flushed, and the patient strong, as in the very first stages of a *broncho-pneumonia,* hive syrup in small doses affords great relief and does positive good.

TARTARIC ACID is the acid of the grape, and occurs in grape juice. When the juice ferments the acid is developed, and being insoluble in this menstruum, it collects in the bottom of the cask, and is shipped and known in commerce as *argol tartar*. Being less valuable than the acid of the lemon, or citric acid, tartaric acid is not used in medicine except as an ingredient of other mixtures.

TEREBENE is a new and valuable *internal antiseptic*, used as a disinfectant of the intestinal canal in doses of five drops given in a syrup or on sugar. It is pure and more reliable for internal use than the common turpentine, and has the same valuable effect.

THYMOL is derived from several sources, principally from the oil of thyme. It is expensive and the odor is objectionable for some purposes, but it is still useful as an antiseptic. Its chief use, however, has developed within the last few months as the most efficient of all remedies against the *hook-worm*. The ordinary antiseptic dose is two grains, but the anthelmintic dose is about ten grains. As the drug sometimes produces ill effects when in such large doses, it is necessary always that its use for hook-worms be under the direction of a physician. It is not a safe drug for people to use at home in these large amounts.

THYROID GLANDS. THYROID EXTRACT. DESICCATED THYROIDS. These are all the newly official preparations of the thyroid glands of sheep, and make a most welcome addition to our list of remedies for disturbances of the nutrition such as occur in *goitre*, and in

myxodoema, against which ailments we were powerless before the discovery of the practical use of these glands.

Even for household use in goitre, or enlarged neck, this remedy is practicable. Tablets are for sale in the drug stores which are to be taken thrice daily, and continued for some weeks. The two-grain tablets are large enough for home use. It is much better, however, in all such cases, to consult a physician and to use the drug under his direction. Its use should be discontinued at least for a time when a certain stage is reached, to be resumed later on. These explanations of the nature of this and other drugs are offered merely for the sake of general information, not by any means to encourage the use of the remedies by persons who are not physicians.

TINCTURE ARNICA. See *Arnica.*

TINCTURE BENZOIN COMPOUND. FRIAR'S BALSAM. This balsam comes from a tree which grows in Peru. Benzoin is used in many compounds. In catarrhal inflammations of either the skin or mucous membranes, it has long had favorable mention, but of more recent years is used more in catarrhal inflammations of the bladder and the whole urinary tract. It is especially useful in inflammation of the bladder. It purifies the contents, and renders them normally acid. It is prepared in the form of a white flaky acid, and given in doses of ten to twenty grains in solution. The compound tincture, or Friar's balsam, is used especially in chronic bronchitis as a stimulat-

ing expectorant, and is one of the best remedies we have. The dose for this purpose is from fifteen to thirty drops, repeated every three or four hours.

TINCTURE CAPSICUM AND MYRRH. (Hot Drops. Number Six.) This is the old-fashioned remedy for colic or stomach-ache, and is a very good one. It helps to expel the gas and relieve the pain. Dose, fifteen to thirty drops.

TINCTURE IODINE. See *Iodine.*

TINCTURE IRON CHLORIDE. See *Iron.* This tincture is used internally for the purpose of feeding the system and the tissues on iron, or rather of supplying the blood with iron when it is short of that element. It is to be given in syrup, and not with any other remedy. The dose of the tincture is about five drops in a teaspoonful of syrup. It should be taken after meals and continued for some time.

TINCTURE OPIUM. See *Laudanum.*

TOILET PREPARATIONS. See *Index.*

TRIKRESOL is one of the very strongest of antiseptics, as it contains about 100 per cent. cresols. One to five drops to the ounce of hot water, or about one-fourth to one teaspoonful to the pint, makes a solution of sufficient antiseptic strength for any surgical purpose. It is therefore quite cheap and sure. It has the advantage of not attacking instruments or the containing vessel, but on the other hand is a powerful poison, and therefore should be labeled if kept in the house, and is best kept in weak solution. A solution of the strength of fifteen drops to the pint

makes a most excellent gargle in all forms of putrid sore throat. The same strength is also good for general household use in the washing of sores, either fresh wounds or those discharging pus and needing antiseptic dressings.

TRIONAL. This is another new and valuable remedy, one of the "coal-tar" products. It is one of the very best to produce a natural sleep, and is an effective remedy to quiet over-excited nerves. There is no harm in using it. The dose is about ten grains. It may be given in larger dose, but this amount is usually sufficient. It is best given in hot water or tea.

TRITICUM REPENS, or Couch Grass, is a remedy which I have recommended in the foregoing pages for painful *inflammation of the bladder*. It is very soothing to those surfaces. As it has no other use the reader is referred to the paragraph on that subject.

TROCHES are not used as much as they used to be, although there are a good many more and better kinds made now than formerly. They are for dissolving in the mouth for the relief of sore throat and bronchitis. Those containing ammonium chloride and cubebs are the most effective.

TUBERCULIN (mentioned here only as a matter of information). This substance is a glycerine extract of pure cultures of tubercle bacillus. It is used by physicians and veterinarians in doses of one-twelfth to one-sixth grain, for the purpose of finding out whether or not a person or an animal has tuberculosis. If so, a certain "reaction" occurs. It is per-

fectly safe, and produces no effect whatever unless tuberculosis is present.

TURPENTINE. Here is one of the best of all household remedies. It is always to be had, or should be, and is one of the most powerful antiseptics known. In addition to this effect it takes out the soreness from a bruise or fresh wound, whether the skin is broken or not. While there are some exceptions, the majority of people do not find turpentine at all painful when poured on or into even a fresh wound, *provided* it be not applied on a cloth and covered up. It should be left exposed to the air for a few minutes or seconds after the turpentine is applied, so that the volatile parts of the turpentine, which appear to be the irritating ones, may evaporate.

How and When to Apply Turpentine

When a nail is run into the foot, or a splinter under the finger nail, or when the hammer has hit the finger instead of the nail, pour on turpentine. Wait a minute and pour on some more. After two or three such applications bandage the part if the skin has been broken. A similar application can be made if needed in two or three hours, but there is no other remedy which will so quickly and so surely take out the soreness and the pain as this. Besides it is thoroughly antiseptic and disinfectant.

The familiar "Fourth-of-July" wounds—those of the toy pistol and the fire-cracker—are dangerous and fatal, not because they are severe in themselves, but because the child was playing in the yard about the house or on the street, and garden soil is the favor-

ite habitat and breeding-ground of the bacillus of tetanus, or lock-jaw, and it is this germ that kills. If not too severe the wound often heals before the real trouble develops. Then lock-jaw suddenly comes on and it is too late.

Nothing Better to Prevent Lockjaw

Get all the dirt, shreds of clothing, wadding, etc., out of the wound. Cleanse it thoroughly with water that has been boiled in order that it may be sterilized, use a clean brush to wash out the wound so that the washing may be thorough, and then pour turpentine into it freely. Do not cover up the wound until the turpentine has evaporated, and hold it so the excess of turpentine will run out. After subjecting the wound to the free effect of turpentine for a few minutes, care being taken that the turpentine has not collected in the wound so that too much of it shall not become absorbed, pack with gauze or absorbent cotton, preferably that saturated with iodoform, and dress the wound again in the same way in a few hours.

A wound treated in this way, whether it be of a toy pistol, a rusty nail, or of any other of the usual methods of getting lock-jaw, will never result in this calamity. It is all a question of proper disinfection of the wound, and we should not hear of the fatalities from lock-jaw following these injuries as often as we do. Some surgeons say leave such a wound open. It may be best to pack the gauze very lightly, but the gauze packing is certainly a safe protection.

For the internal use of turpentine see Terebene,

which is purer. But when the terebene cannot be had, turpentine itself is useful. In four or five drop doses on sugar or in the form of an emulsion it is valuable in intestinal colic, and especially so when in typhoid fever the tongue gets dry and brown.

TURPENTINE STUPES. In bronchitis, and in intestinal colic, when a counter-irritant effect is desired over a large surface, this is the best remedy. Pour into a plate half to one teaspoonful turpentine. Dip a cloth of the size wanted into boiling water, wring it out, then dip into the turpentine and apply hot to the skin. It will sting when applied in this way, but will not usually blister. It may be left on from one-quarter to half an hour, according to the sensitiveness of the skin. The hot water dilutes the turpentine, and at the same time makes it more volatile, and more irritant, so that the effect is better.

TURPETH MINERAL. This is the yellow subsulphate of mercury. It is rather an obsolete method of giving mercury, but is still sometimes used in quarter-grain doses as an alterative. As an emetic, it is rarely used in *croup* in two-grain doses as it used to be. We are getting away from that manner of treatment of croup, but there may be some instances in which it is justified. The syrup of ipecac makes a safer and better remedy for family use.

UROTROPIN. This is the brand name of a very useful drug which the druggist can furnish either under this name or that of the official U. S. Pharmacopeia. Its use is to disinfect the contents of the bladder, but as

it works best in an acid medium, some such acid as benzoic must be given with it if the urine is alkaline. The average dose is three grains, well diluted. It is better that it be administered under the direction of a physician.

UVA URSI. See *Bearberry.*

VALERIAN has been used in the nervousness of certain forms of hysteria, but is not so much used now. It is a nerve sedative and anti-spasmodic. The dose of the fluid extract is one teaspoonful.

VERATRUM. The tincture of veratrum viride is used by physicians with very happy results as an arterial sedative in pneumonia to relieve the intense congestion of the lungs. Two or three doses of three drops each is as much as is generally given. It is a remedy which only the physician should use.

VIBURNUM PRUNIFOLIUM. See *Black Haw.*

VITRIOL. Blue vitriol is the sulphate of copper. It is not used in medicine. White vitriol is the sulphate of zinc. In solutions of one or two grains to the ounce it is used as an astringent eye-wash.

WARBURG'S TINCTURE. This celebrated remedy comes to us from tropical countries where it has been used with great success in severe cases of chronic and malignant malarial poisoning. The dose is one to four teaspoonsful, but in the latter amount is not to be repeated more than once. The mixture makes also a good general tonic.

WATER OF AMMONIA (Aqua ammonia). See *Ammonia.*

WHISKEY. See chapter on *The Truth About Whiskey.*

WHITE ARSENIC. This is the common arsenic, or arsenious acid, first prepared by sublimation from the ores. See Arsenic.

WHITE LEAD, or carbonate of lead, is the familiar kind which, mixed with linseed oil, constitutes the white lead paint. See *Lead.*

WHOOPING COUGH TABLETS. In the distressing paroxysms of whooping-cough it is sometimes necessary, and very often best, to give the child some relief. A very excellent tablet has been devised by Squibbs for this purpose, containing antipyrine, heroin, drosera, belladonna, ipecac, and the oil of anise. These tablets can be purchased at the drug store by inquiring for Squibb's, and are safe and very useful. The dose is one tablet every hour or two until relieved, and then at longer intervals.

WILD CHERRY BARK is a cough sedative and tonic of some value. It is not alone, but as an ingredient of useful cough mixtures, however, that it is known.

WINE OF COCA has been so widely advertised as a cure-all that it needs some notice. Coca itself, aside from the wine element (which in most of the patent preparations is the main thing), is a nerve stimulant and a muscle invigorator. This is demonstrated by the natives who chew the leaves when on their long and burden-bearing journeys. But the wine content certainly overcomes any good effect of the coca in the usual article offered for sale.

WOOL-FAT. ADEPS LANNAE. LANOLINE. This most

useful and modern discovery is made from the fat of sheep's wool. While it has a bland effect on the skin, it derives its chief value from the fact that it does not become rancid, and therefore serves as a most excellent excipient or vehicle for other drugs, and is used in making various salves.

WORMSEED. Chenopodium. Jerusalem Oak. This rank and odorous plant grows about the suburbs and waste places of our towns and cities. The oil of the plant is effective in doses of ten drops against the round-worm. *Santonine* is made from a superior variety which grows in the Levant, and in Europe. See *Santonine.*

YELLOW JESSAMINE. See *Gelsemium.*

YERBA SANTA; Mountain Balm; Consumptive's Weed. This is an expectorant, alterative, and anti-catarrhal. The leaves afford a rich resin, which is useful also to mask the disagreeable taste of other drugs.

ZINC. The effect of oxide of zinc salve is familiar to all. A newly official compound, the *stearate of zinc,* is also a most excellent sedative and soothing astringent powder which, dusted on or made into an ointment, dries excessive secretions, such as occur in "cold sores," also in perspiring feet and arm-pits. It can be used with the greatest freedom without bad effects.

PART XIV
HOUSEHOLD ECONOMICS

"To the woman, whose destiny it is to remain a large share of the time at home, whose divinely appointed mission it is to 'guide the house,' a new sphere of usefulness and efficiency opens with the knowledge that in sanitary matters an ounce of prevention is worth a ton of cure. There is nothing in hygiene that she cannot comprehend, and too often does she realize this and begin to study it, when, too late, she stands beside the still form of some precious one, slain by some one of those preventable diseases that, in the coming sanitary millennium, will be reckoned akin to murders."—MRS. PLUNKETT.

PART XIV

HOUSEHOLD ECONOMICS

THE fact that the sum total of the "cost of living" has greatly increased during the first decade of the 20th century seems to be universally recognized. What the causes are which have brought this about, as well as remedies therefor, has occasioned much discussion and exhibited a wide variety of opinions.

Happily many of the real necessities have not very greatly increased in cost, and I desire to show ways in which we may avoid some of the expenses which we have thoughtlessly gotten into the habit of incurring.

Keeping strictly within the lines of cost of *living* (not conducting business enterprises), it is worth while to note that necessary transportation to and from work (carfare, etc.), has not increased. It is only those who are reckless enough to indulge in automobiles (or aeroplanes), who find this cost materially increased, and they assuredly need not be regarded as objects for our solicitation.

Individual Standards Raised

It is true that the cost of wearing apparel is somewhat greater than in former years, but the question may well be raised whether it is not our individual standards and demands rather than the manufacturer's cost of most articles for wear that are at fault.

If the same materials do cost a shade more than the normal prices of ten to twenty years ago it is easy to see that this increase is more than counterbalanced by the present rates of wages, salaries, and income which generally prevail.

But I believe that a very little observation will prompt the reader to agree with me when I say that the increased cost of living has arisen largely from two sources, both of which are under our control. Both are habits that we have grown into during the "years of plenty," and both are wellnigh universal. One is our frequent indulgence in luxuries, and the other may best be briefly expressed, perhaps, in the one word *convenience*.

I am not disposed to croak. On the contrary, I believe in happiness, especially in that form and degree of happiness which comes from not being pinched. But one needs only to watch a few persons or a crowd in business or out and in most any village, town, or city, to see that men, and especially women and girls expend more effort and more time and money in satisfying their unnecessary inclinations and wishes than in supplying those which are necessary to their well-being.

Spending Money

Indulgences in tobacco and drink among men are wellnigh if not quite offset by purchases due to fancy or appetite among young and middle-aged women. The automobile and the "show," especially the cheap ones, have helped to make us a generation of spendthrifts, and we have little real excuse for complaining

of costs while we spend so much of our substance in the ways we do.

The two ways just suggested are only samples. The multiplication of places where "soft" drinks and confectioneries are sold, and the crowds almost constantly buzzing about them, bear witness also to a prevailing weakness.

Automobile and Airship

The pity of it is that such fresh air encouragements as the automobile, the last and best gift of constructive science to man—the boon of yesterday—is leading us into reckless ways. What the air-ship—wonderful gift of today—will do remains to be seen.

Mr. Jas. J. Hill has well said that it is not the high cost of living as much as it is the cost of high living that is at fault.

A Canadian authority writing recently on the increased cost of living in the Dominion attributes present conditions to:

(1) The higher standard of living and requirements of citizens generally.

(2) A growing demand for luxuries.

Trust Combines

(3) Trust combines (in the United States) and increased prices demanded by them.

(4) Diminished production in the Dominion.

(5) Higher wages.

(6) Increase in proportion of the non-producing population.

In support of the latter he makes the interesting statement that while the urban population of the Province of Ontario has increased during the decade

prior to 1909 from 901,874 to 1,197,274, the rural population for the same period has actually decreased from 1,108,874 to 1,047,016.

Convenience

This must be taken in what the literary critics would call "the bad sense," that is, to mean an imaginary rather than a real convenience. It is *so* nice and *so* handy to buy everything all ready prepared and cooked ready for serving!

Whenever there is a real saving of either time, effort, or cost, provided it be accomplished without too great a sacrifice of either one in order to save on the other, there is real economy. The very highest degree of economy may and is likely to go hand in hand with methods of the greatest convenience. But are we not sacrificing too much in the way of cost for the sake of a fancied convenience? We are getting into the habit of not being satisfied with merely convenient ways of doing things—we don't want to do them at all.

Two Kinds of Housewives

There is a far-reaching difference when you come to follow it out to its legitimate, and indeed to its inevitable consequences, between the resulting wealth and independence of that housewife who seeks to know of places where she can buy ready-cooked and ready-made things the cheapest, and that other one who studies the margins of difference in actual quality and lasting powers between goods made to sell and goods sold to be made up; between the woman who seeks to avoid the duties of her household and the other who devises ways and means of doing things easily (but of doing them).

The one is merely a bargain hunter; the other is a queen of differentials—an embryo capitalist. The one will always be under the necessity of bearing her burden; the other will become able to employ servants if she prefers. The one will never accumulate money; the other will learn when and how to clip her own coupons and draw her income.

Old Days of Drudgery Past

We will never go back to the old days of drudgery for women. No one would wish to. But neither must she commit the still more fatal blunder of seeking ways of cultivated profligacy. And that is the very danger we are facing in most of our American cities.

Instead of trying to shirk her domestic duties let the housewife be diligent in devising and employing labor-saving conveniences which will enable her the better to take advantage of the constant savings resulting from the use of raw materials.

The Fireless Cooker

This article of convenience and economy will serve as an example of the problem I am trying to enunciate. Few appreciate its advantages. The principle of the fireless cooker is a simple and well-proven one of the economy and efficiency of retained heat. It is not strange that 90 per cent. of the heat generated in an ordinary cooking stove is lost, since we learn that the best railway locomotive can save in the form of power only seven per cent. of the heat (energy) contained in coal.

The different fireless cookers are all constructed in much the same way, the purpose being to prevent radiation and loss of heat. Those which require par-

tial cooking of the food on the stove to begin with are apparently not the best. A very useful and practical one may be built by any person on some such plan as the following:

How to Make a Fireless Cooker

Get a firm box of the size desired, say 18 inches deep and the same in width by two or two-and-one-half feet long. Fit into this a smaller tight box in such manner that a space of about one inch is left all about the inner box, which space is to be filled with some such material as finely-cut straw, sawdust, or better yet some kind of pulverized clay or asbestos. The manufacturers usually claim some sort of "discovery" or "invention" on their part for this purpose which makes their article super-excellent. But any good material will do. Divide the inner box into at least two compartments by a thick cross-partition. Make tightly fitting lids for each of the two compartments. Have a lining fitted into the compartments made of bright tin, since we know that a bright surface does not absorb heat as a dull one does. Let the heavy lid of the outer box, and also the lid for each compartment be lined with tin. Then secure four or five flat stones about an inch thick (soap-stone is best), for radiators, and two or three wire frames so fitted that they will rest only around the sides of the compartments. These are to support either a second dish if it is desired to put in two at a time, or a second radiator if it is required as in baking, one radiator being placed on the bottom and another above and resting on the wire frame.

A fireless cooker constructed on this plan does the entire work, so that the food needs no preliminary cooking. All that is necessary is to heat thoroughly the radiators while a meal is being prepared or the water is being heated for washing dishes, then remove these radiators to the cooker and place over them the raw foods. They will not burn. But when, the next morning the cereals or baked fruit, or after several hours the baked or boiled meats and the vegetables as well as the pie or the pudding for dessert are wanted, they will be found to be so completely and deliciously cooked that the fiber will be tender and the flavors retained. If no radiators are used the food requires a preliminary cooking of about fifteen minutes.

No Preliminary Cooking Needed

They will also be found hot and ready to serve, and if hot water is desired it may have been heated in the same way. Bread, cakes and pies can be cooked in this way on exactly the same plan as is done in a baker's oven. Such a device, even though it be crudely gotten up, will save much in both labor and fuel. We do not jump to an atrocious conclusion that *all* the fuel can be saved by them. Rather let us be content with a saving of 30 or 40 per cent. all along the line, and multiplying this profit daily.

A barrel of flour costs an average of, say $6.00 the year around and the country over. The cost of the yeast for bakings for the average family of five will run about fifty cents to the barrel of flour, i. e., counting fifty bakings. Other ingredients are of negligible

Excessive Rate of Cost of Prepared Foods

quantity and cost, but might possibly reach twenty-five cents, making a total of $6.75 per barrel.

Different grades of flour vary considerably in bread returns, but the baker usually gets 300 loaves from a barrel of good flour, for which the consumer pays five cents each, or $15.00. This means a gross profit of $8.25, or 132 per cent.

What thrifty housewife is there who would not furnish labor and fuel required at this price if she did but stop to reckon the difference?

What the Consumer Pays

This enormous profit accounts for the baker's and the grocer's wealth, and the ability of both to maintain expensive plants and heavy costs for wagons, teams, and men. Of course it all comes out of the consumer, and that fact alone should be sufficient to cause the careful person to consider. The very large amounts of the baker's purchases does not by any means account for his wealth and that of the middleman, the grocer.

If the barrel of flour lasts the family of five two months, the saving of 132 per cent. must be counted for that time. The total for the year is six times that, or 792 per cent. per annum.

The above rate of saving is no greater for the staff of life than it is in the line of pastries. The baker cannot buy sugar much less than the housewife can, but he learns to use other things "just as good." The temptation to save on the cost of lard, eggs, sugar, etc., are too much for the average baker, as is too often evident in the flavor of his products.

The Sanitary and Hygienic Standpoint

On the side of hygiene and sanitation, which is the first concern of this work, everything is in favor of home-cooked foods. The sweet and wholesome bread and pastries made by the average American housewife are in striking contrast to the stock flavor of baker's goods. Pleasing flavor is one of the essentials to good digestion.

A most atrocious and utterly false statement is credited to the president of the National Association of Master Bakers made at their annual convention at Kansas City this year (1911). The dispatches quote him as declaring: "This country is full of housewives who are proud of their cooking and who think they are doing their duty by baking at home. The long suffering stomachs of their families continue to pay the penalty of this mistaken sense of their duty." He is also quoted as saying that by so doing they are "committing murder," in all of which he has of course very far over-stepped himself.

Home Cooking More Digestible

If such statements were ever made, of which there appears to be no doubt, they ought to be corrected, for entirely aside from the libel against a most esteemed member of our civilization, the real facts are that the average American housewife is a skilful cook and that home-made bread and pastries are really very much more digestible than the boughten goods.

And then, too, anyone who has watched the deliveryman bringing in the loaves hugged close in his dirty arms, and has noted his besmeared clothing, or in a basket from which he takes them with the same

gloveless hands that he drives and handles his horses with, will need no further evidence of danger from filth.

In very many bakeries there is evidently a laudable effort to keep the room free from flies and other filth, but possibly no more generally so than in domestic kitchens.

Economic Loss Through Illness

A great, though invisible economic loss is sustained through illness due to eating infected fruits and vegetables, especially such as are eaten raw. So far as I know this has never been definitely traced. But one needs only to see the swarms of flies on uncovered fruits in many open markets or at almost any fruit stand, to be able to account for the prevalence of diarrheas, dysentery and death. There ought to be in every state, as there is for instance in Oklahoma, a law requiring vendors of fruits and vegetables to protect them from flies and all other insects, as well as dust from the street, for there can be no doubt that fatal diseases are sometimes contracted through these sources.

An Experiment with Bananas

A medical friend of mine, who owns a large plantation in Mexico, says that one day as a fine branch of bananas was being carried in, a native bystander remarked that there goes more "caliente" (fever). On inquiry he learned that Mexicans regard bananas as fever producers. Believing the fruit itself to be innocent, he determined to find if possible where the trouble lay. He allowed a portion of the branches to be left exposed as usual to the accommodation of the

flies and other insects, and the peel soon became covered with black spots and finally turned black all over in the customary way.

Protection from Flies

But the other branches he caused to be protected from flies by screens, and this fruit mellowed without any black spots appearing on the peel, and by careful observations he was able to prove that when so protected bananas could be eaten freely without danger of anyone getting fever from them. His explanation is that the germs which turn the peel black, and which are conveyed to the pulp by the fingers of the person handling or eating them, are what cause the infectious disease, and that when bananas are rightly protected from filth they are wholesome and nutritious.

Lack of Economy in Prepared Foods

When we come to the question of "breakfast foods" or cereals the rate of possible saving is greater than in pastries and breads. The cheapest packages of the prepared cereals cost not less than ten cents and weigh about one pound. The cost of the same weight of corn meal (a very much better food), is less than two cents, or of rolled wheat or oats about the same, leaving a margin of 8 cents which goes to the manufacturer and dealer. But this means a corresponding loss to the consumer—a loss of 4,000 per cent. daily, not the annual rate—and spells a too great sacrifice to "convenience."

The Saving with the Fireless Cooker

Take for instance a day's supply for a family of ten persons as one pound, which costs at least ten cents for any manufactured article. The un-manufactured article can be set for preparation at night in a fireless

cooker and be ready to serve hot in the morning. The cost of preparation has been nil, the radiators having been heated (or cooking begun if that style of cooker is used), during the preparation of the evening meal. The amount saved is 8 cents, which pays for a quart of fresh milk, or a pint of milk and cream. The product is delicious and very much more nutritious than the manufactured article.

Loss on Canned Fruits

In the use of canned and preserved fruits and vegetables the same principle holds, as I have suggested in the chapter on *"Foods."* Here the actual cost per meal may not be at so great variance, but the amount secured is. The average ten-cent, or fifteen-cent, or twenty-cent can of vegetables or the jar of preserved fruit holds almost nothing. Moreover the acid flavor of factory-preserved fruits is a constant rebuke to their use, and excites pity for those who use them.

Loss on Prepared Meats

Prepared and cooked meats show an even greater ratio of loss if we follow closely the same grade of meats. The writer, while investigating this subject, met demands for cooked corned beef at 35 cents per lb. (11 cents, or 12 cents per lb. would have been high for the same cuts of fresh beef), 40 cents per lb. for sliced bacon and ham; 30 cents for sausages; 50 cents for breakfast bacon sliced in jars; 38 cents per lb. for roasted (baked) chicken, etc., etc. These prices will of course vary with locality and slightly with markets and seasons. I wish to be understood as illustrating a fixed principle of home economics rather than trying to lay down a law.

The habit of buying foods already cooked is more prevalent in cities now than in towns and villages, but it appears to be spreading to the latter. This is unfortunate on both economic and sanitary grounds.

Choicest Cuts of Meat Expensive

Another expensive habit is that of buying only the choicest cuts of meat. Here, again, convenience often dictates the easier way, and at a cost of anywhere from 50 to 150 per cent. Many analyses have shown that the cheaper portions of the animal are quite as rich in nutriment as are the few parts which command the higher price simply because more often demanded.

Careful test and observation on the part of any housewife will prove to her satisfaction, as it has already to many, that in no single line can she make as great difference in the weekly expense accounts as in the line of meats. Her carefulness, too, in cooking until the fiber has reached a thoroughly tender state and her ingenuity and skill in preserving the flavor of the meats will be highly rewarded.

Increased Cost through "Package Goods"

It is time we were all awake to a very seductive policy that is being pursued by manufacturers generally for the purpose of greater gains, and to my mind the ingenuity displayed by them is today the best single explanation of the high cost of living. I refer to the increasing prevalence of *package goods* on the market.

Now, there are some things to be said in favor of handling goods for the table in packages. On sanitary grounds, this method is, under any present regulations much to be preferred. But there is no ade-

quate reason why the public should not be protected in the supply of pure and clean goods in bulk.

Shortage in Weight

When honest values are given, much might well be conceded to package methods of retailing eatables, for the sake of convenience and cleanliness. Anyone, however, will appreciate that the extra expense necessary in putting up the package appropriately and in a sanitary manner, would make it impossible for the manufacturer to give as great a quantity as could be sold profitably in bulk.

Legitimate Prices

The contents of a five-cent package of soda crackers weighs about five and one-quarter ounces, net. The contents of a ten-cent package of soda crackers weighs about ten and one-half ounces, net. These are the weights of the comparatively fresh goods, such as are sold in all first class grocery stores. Bulk soda crackers can be bought at a much less price and when proper care is used in the handling and the goods are fresh, it is economy to use the bulk goods.

And now the good housewife is saying to herself: "Oh, but the quality of the goods in the package is very much better." Precisely, but if as previously mentioned, the bulk goods are fresh and are protected from contamination, there is no doubt but what they will prove as satisfactory as package goods of the same grade. And sometimes it is found that package goods are not fresh. It is always well, in the purchase of package goods, to patronize the dealer who does not overstock, who buys in small quantities and replenishes often.

Wise Law in North Dakota

In North Dakota, there is a law compelling the manufacturer to print plainly on each package of goods the net weight.

If such a law was on the statute books of every state, the purchasing public could easily calculate the extra cost between package and bulk goods and considerable saving could be made by the purchase of bulk goods when they could be obtained fresh and from dealers who handle them properly.

Often we are willing to pay more for package goods put up by first class manufacturers, as we feel assured that they are fresh and perfectly clean and are more easily taken care of in the home.

Frequently, however, little or no attention is paid by the purchaser to the difference in cost between the package and bulk goods, which figures materially in the cost of living.

Frozen Delicacies as an Example

Again, take the subject of prepared desserts of the character of frozen delicacies. The materials required for making two quarts of ice-cream are about as follows.

1 quart milk	$0.08
1 pint cream	.20
1 lb. sugar	.07
Corn Starch	.01
1 egg	.02
Flavoring	.02
12 lbs. ice, 3 lbs. coarse salt	.06
Total	$0.46

or 23 cents per quart.

The average cost to the householder is 50 cents per quart. The saving is at the rate of 118 per cent, and the only additional outlay is a few minutes of time and labor. In the preparation of other ices, such as orange ice, lemon ice, sherbets, etc., the difference is even greater, for the cost of the fruit juices is less.

HOUSEHOLD PRESERVATION OF FOODS

It is poor economy to attempt to get along without ice when it can be had, or when there is not an especially cool cellar. Above 60° F. the tendency toward putrefaction of animal foods and fermentation of the vegetable substances is very marked. It is still better to have the degree of cold for keeping things as near 40° F. as possible. Below 60° F., however, the multiplication of bacteria is not very rapid, and for many varieties not at all.

For the winter months and colder latitudes ice is a luxury, and in no sense an economical necessity.

Cleanliness of the ice-chest is an important item usually over-looked. Of course it must be well drained, but it must also be cleaned out and aired frequently, for most purposes as often as twice a week.

Milk and butter should be kept in entirely separate chambers from vegetables and fruits, as they both absorb odors and flavors of all kinds readily.

An Effective Ice Box

If no refrigerator is available a very effective ice-box can easily be extemporized by placing a good tight box inside of a larger one, leaving a space all about the inner one which is to be filled in with saw-

dust or clean sand. A drain or outlet must be provided for dripping water, and a tight lid. In the absence of a compression hinge for the lid, a weight may be used. The ice will last longer if wrapped in heavy paper or impervious cloth so as to exclude the air and diminish evaporation. In this sort of ice-box a separate compartment can be arranged for the food, or it may be put directly upon the ice.

Sterilising Foods by Boiling

Another and the opposite way of preserving foods is to sterilize them by boiling. The main point in the use of any means of preservation is that it must be done *before the food has begun to spoil.* Fermented fruits are not quite so dangerous, but all animal foods, including eggs and milk, sometimes develop certain bacteria which excrete ptomaines and toxins of deadly poisonous nature, so that it is never quite safe to use such foods after they have become in the least tainted. These poisonous substances are not always evident to the taste or smell. They may occur, too, very early in the process of decay. It is these substances and not the metal of the cans that make canned and preserved meats dangerous. We have to bear in mind that the bacteria did the mischief as a rule before the meats were prepared for canning, and that now there is little evidence of the presence of their ptomaines. Sometimes they do give evidence of their existence by an unnatural odor, and the slightest odor of an unnatural character should be taken as a warning against making use of canned or preserved products of any kind.

Food Question a Large One

There are more things to think of when considering the food questions than merely satisfying hunger and filling the stomach. There are necessities beyond even the nourishment of the body. The question always arises, How much of a load are we giving the system to carry? And here, again, arises the problem of getting rid of the bodily waste, both that portion which is made up of food taken into the alimentary canal but not absorbed, and that composed of the broken-down cells and fibers, and other products of tissue change which are being constantly thrown off in the process of elimination by the action of kidneys, skin and lungs.

There are those who would emphasize the importance of a meat diet, and others who would claim that fat meats and oils are necessary to give energy, and still others who would try to show that a strictly vegetable diet is best, and that it is wrong (and some would even say, a sin) to eat meat at all. But a careful consideration of the subject in all its phases will convince anyone that the system does require all of the different food elements, each for its own effects upon the entire system, and each contributing its particular part to the highest possible development of the body and mind.

The Real Problem

The real question is how best to get from our foods, and in what proportions we need those foods, all the elements which can best contribute to the development of our complex energies. The human race, on account of those complex energies and faculties, re-

quires certain food elements of quite varied nature. The carnivorous diet of the lion or the tiger contributes to his quick action and high-strung mode of life, as well as to his fierce disposition; while at the further extreme the sluggish and wallowing pachyderm lives on roots, bulbs and watery grasses. Between them stand the great classes of equinidae and the bovidae, the horse and the cow families, whose higher classes of foods afford them the sugar and starches which contribute to their marvelous strength and endurance. The higher in the scale of life the animal is and the more specialized its functions, the greater the variety of the food elements it requires. The fact will be readily appreciated then, that the human being demands a very much more diversified diet to meet his natural requirements.

Value of a Balanced Ration

The balanced ration seeks to provide all these needs, and more than that. It means "an adjustment of the properties of foods so that all needed ingredients are to be found," a food supply so adjusted that the system shall have the right *proportions* of everything needed, and not become loaded with waste materials.

It is a fact neither often considered nor generally recognized that *one-sixth* of the bodily energy is estimated to be the amount required to digest a full meal. Consider then what proportion must be required to dispose of an engorged or stuffed condition, and you will need to look no further for an explanation of your feelings after a Thanksgiving or Christmas dinner, or even after the accustomed Sunday dinner.

CALORIES

For the sake of a convenient and universal standard the different items of the balanced ration are measured by the number of "calories" each contains. It is not to be supposed that when one uses the term *calories* he would assert or have any one infer that the value to the system of any food depends wholly upon the number of calories it contains, or even that it will yield up for absorption. But in a general way the standard is useful.

It is true, also, in a general way, that the actual needs of an average man for the different grades of activities are pretty well figured out.

Number of Calories Needed

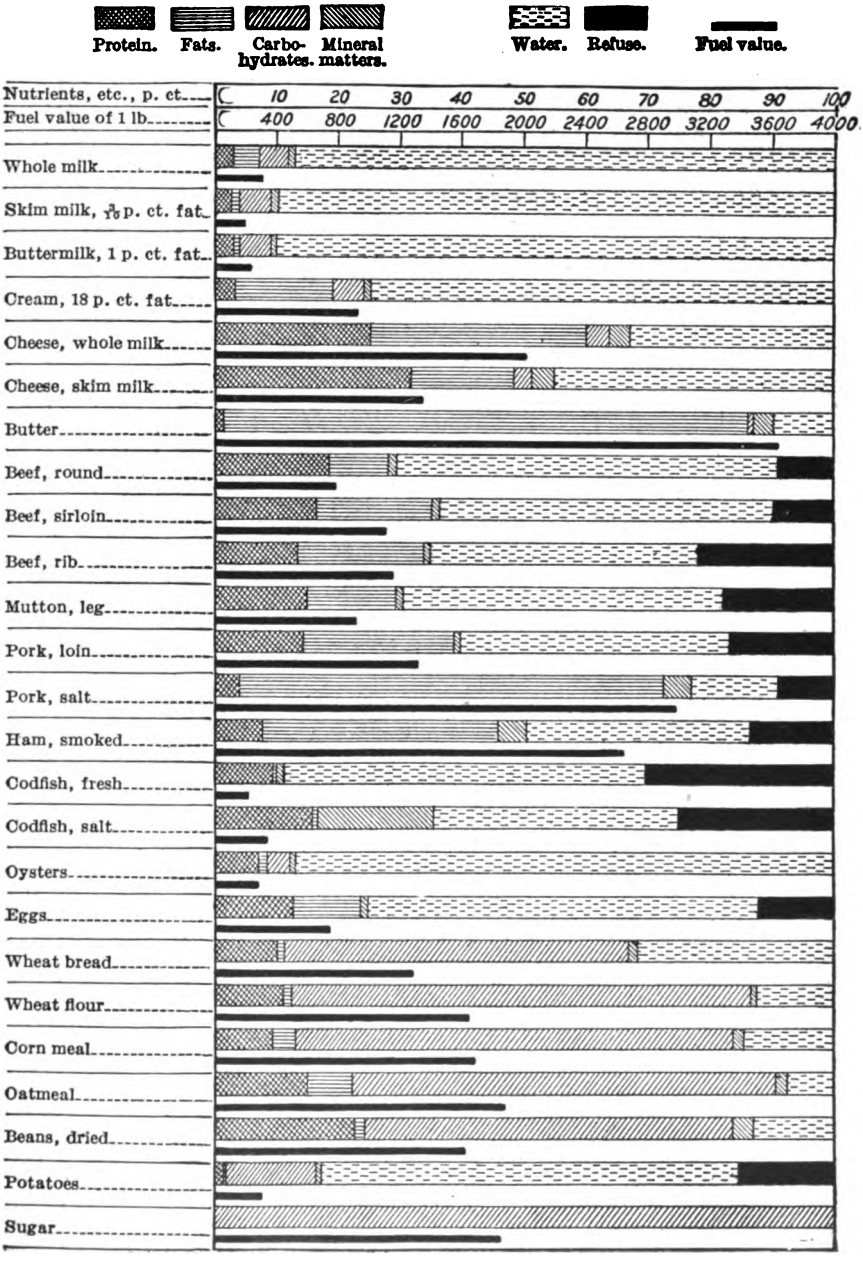
About 1,800 calories daily are required for a man weighing 132 lbs., at middle life, and not engaged in active labor. For a man weighing 150 lbs., 2,100 *calories* per day are required during periods of inaction, but while doing hard work, from 2,500 to 3,000 calories per day are necessary.

A calorie (sometimes spelled calory), is the amount of heat required to raise 1 gram of water from zero centigrade to 100° centigrade, or, which is the same thing, 100 grams of water from zero cent. to 1 degree cent. In distinction from other uses of the word this is sometimes more specifically called *centuple* or rational calorie.

What a Calorie Means

But for greater convenience and to avoid the use of fractions the term calorie, as generally used, means the amount of heat required to raise one *kilogram* of

COMPOSITION AND FUEL VALUE OF FOODS



water from zero to one degree centigrade. This is sometimes called the *grand,* or large calorie. It offers a more convenient basis of calculation, or unit, for the reason that so many of the different articles of food contain in one pound *less* than one thousand calories, and in such cases whole numbers can be used instead of fractions. So this is the meaning of the term calorie as used in this work.

Fortunately for the convenience of anyone who wishes to get a better idea of the value of our various foods, the number of calories contained in each pound has been quite definitely determined. I give in the subjoined list, the findings of the United States Department of Agriculture as reported in Bulletin No. 28, which will be found very useful, and which I commend to the reader for frequent reference.

Merely Value of Different Foods

This is not to be understood as suggesting that each person figure up the exact amount of proteins, carbohydrates and fats, and the number of calories required of each class, that he ought to consume each day. Nothing so laborious as that. But a better knowledge of what of value the different foods contain, and how best to meet and satisfy fully his daily demands, and how he may know when he is on a reasonable diet, as well as to secure the amount he requires in the most economical way—all these are well worth any person's observation.

The Proteins

From the *proteins,* percentages of which may be learned from the above table for any one of the common foods we derive "brawn," or muscle, and con-

nective tissue. They are essentially tissue builders. Besides those found in the animal foods (lean of meat, eggs, milk and cheese), it may be noted that a *vegetable* protein, the gluten of wheat, is an important ingredient of that staple. Indeed this is one of the cheapest and most easily digestible forms of protein, and therefore most generally useful.

The Carbohydrates

From the *carbohydrates,* found chiefly in vegetables and fruits, including cereals, we manufacture much of our energies and develop the heat of the body, which, as we have previously seen, is but another form of energy. Such of the carbohydrates as are not immediately consumed may be stored up in the system in the shape of fats.

The Fats

From the *fats* we derive energy and heat directly, any surplus being usually stored up in the tissues for future use.

Water

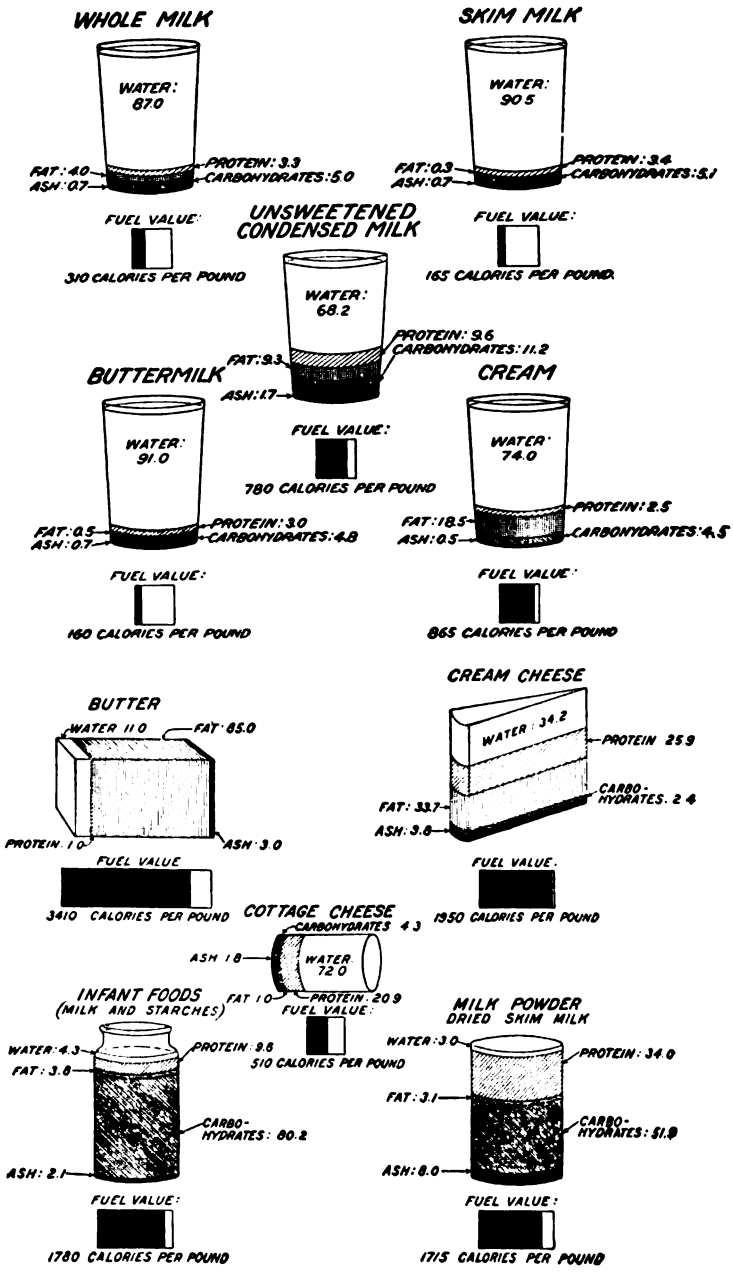
Water, an unexpectedly large quantity of which is needed for the daily use of the system in its various physiological processes, is seen by this table to constitute a major portion of all the foods. This, besides the additional large amounts taken in the form of drinks, makes up the requirement for solvents and carrier of nourishment to the tissues.

All the needs of the system are thus met, but not by any one kind of food.

ECONOMIES

Bulletin No. 28, U. S. Department of Agriculture, Office of Experiment Stations, gives the following percentages of protein

CONSTITUENTS OF MILK AND ITS PRODUCTS



and fats in the different food substances named, also the number of grand calories in a pound of each, the edible portions alone being considered.

Article of Food.	Per Cent of Protein	Per Cent of Fats	Calories per Lb.
Beefsteak	23.5	20.4	1800
Loin of Veal	21.	8.	780
Leg of Lamb	19.	16.5	1055
Leg of Mutton (roast)	26.	22.5	1420
Ham (fresh)	18.5	17.7	1075
Chicken (young)	21.5	2.5	505
Turkey (young)	21.	23.	1360
Round Steak	22.	13.6	950
Porterhouse	22.	20.4	1270
Sirloin	13.3	43.7	2090
Salt Codfish	25.	.03	410
Salt Mackerel	17.	22.6	1345
Canned Sardines	23.	18.	1260
Canned Salmon	22.	12.	915
Fresh Oysters	6.	1.3	230
Fresh Hens' Eggs	13.5	12.	760
Fresh Butter	1.0	85.	3605
Full Cream Cheese	26.	2.14	1950
Milk (entire)	3.3	4.	325
Whole Wheat Bread	9.4	4.	1140
Oyster Crackers	11.3	7.5	1965
Soda Crackers	9.8	7.3	1925
Apple Pie	3.	4.3	1270
Gelatin	91.4	0.1	1705

It will be noted as an interesting feature of the above table that it includes the values of the various foods named expressed in calories, the new term with which we are becoming familiar.

ECONOMIC VALUE OF MILK AS COMPARED WITH SOME OTHER FOODS

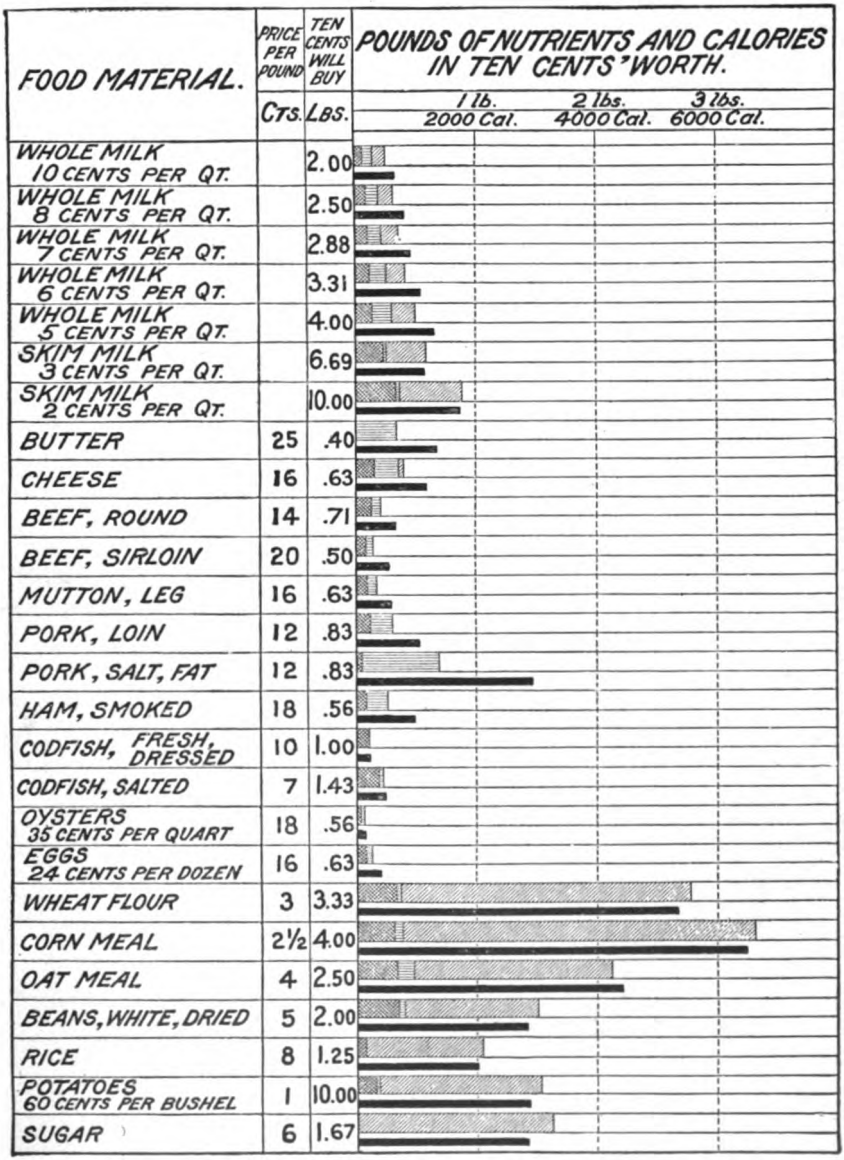
Milk and milk products contribute much more to our nourishment than we generally suppose. Milk takes its place among our staple supplies as a food, not as a drink. There is about the same nutritive value in a quart of milk as is contained in three-quarters of a pound of beef steak, or in six ounces (half a small loaf), of bread. While we can appropriate and gain nutrition from about two-thirds the weight of bread and one-third the weight of beef, about one-eighth of the entire weight of milk goes to our nourishment. Moreover the remaining and useless part of the bread and beef consist of substances which are less easily disposed of and gotten rid of than are the remaining seven-eighths of the milk of which is chiefly water. A glass of milk taken slowly and with the meal adds quite as much to the nutritive value of the meal as a quarter of a small loaf of bread or a small slice of beef.

The accompanying chart shows the composition and food value of average milk, and a diagrammatic comparison with some other foods in this respect. It is taken from Farmer's Bulletin 363, U. S. Department of Agriculture. It will be noted that the entire space across the page on any one line is divided into ten smaller spaces. Each of these smaller spaces represents ten per cent. of the entire substance of the food named on its line. The proportion of each

PECUNIARY ECONOMY OF MILK AND OTHER FOODS

Amount of Actual Nutrients obtained in different foods for 10 cents at certain assumed prices per pound

PROTEIN. FAT. CARBOHYDRATES. FUEL VALUE.


FOOD MATERIAL.
PRICE PER POUND
TEN CENTS WILL BUY
POUNDS OF NUTRIENTS AND CALORIES IN TEN CENTS' WORTH.
Cts.
Lbs.
1 lb. 2000 Cal.
2 lbs. 4000 Cal.
3 lbs. 6000 Cal.
WHOLE MILK 10 CENTS PER QT. 2.00
WHOLE MILK 8 CENTS PER QT. 2.50
WHOLE MILK 7 CENTS PER QT. 2.88
WHOLE MILK 6 CENTS PER QT. 3.31
WHOLE MILK 5 CENTS PER QT. 4.00
SKIM MILK 3 CENTS PER QT. 6.69
SKIM MILK 2 CENTS PER QT. 10.00
BUTTER 25 .40
CHEESE 16 .63
BEEF, ROUND 14 .71
BEEF, SIRLOIN 20 .50
MUTTON, LEG 16 .63
PORK, LOIN 12 .83
PORK, SALT, FAT 12 .83
HAM, SMOKED 18 .56
CODFISH, FRESH, DRESSED 10 1.00
CODFISH, SALTED 7 1.43
OYSTERS 35 CENTS PER QUART 18 .56
EGGS 24 CENTS PER DOZEN 16 .63
WHEAT FLOUR 3 3.33
CORN MEAL 2½ 4.00
OAT MEAL 4 2.50
BEANS, WHITE, DRIED 5 2.00
RICE 8 1.25
POTATOES 60 CENTS PER BUSHEL 1 10.00
SUGAR 6 1.67

ingredient, including refuse substances and water, is thus graphically shown.

Milk a Valuable Food

Milk is thus seen to be a valuable food. It is not by any means a complete or universal food for the adult. Each animal mother does under normal circumstances provide a food which completely nourishes her young as long as it is young, and some animals, such as the cow and the goat furnish nourishment suitable in some measure to the offspring of others such as the human. But as a rule some modification is required for the infant child, and it cannot be said that any kind of milk is suitable food for the adult for any great length of time.

Buttermilk and skim milk also have each a definite food value as shown in the table elsewhere. It will be seen from this chart that skim milk and buttermilk are lacking in only the one ingredient, fat. When this constituent is provided in some other way, as in fat of meat or nuts, or even in the fat producing starches and sugars, either drink serves an excellent purpose.

Nutrient Values Compared

The comparative cost of milk and milk products on a basis of their nutrient value as related to the other foods is well shown in the chart on another page. The nutrient value of milk cannot of course be gained by the price per quart, but the comparative values are well illustrated. The chart is issued by the same authority as that named above. It shows that milk, except that which costs ten cents per quart, is quite as cheap as a source of protein food as any ani-

mal food except cheese and very cheap fresh meat or salt fish. Protein foods are the most expensive as a class, and the demand for them is universal, so this is an important item.

Milk Products

These are the most important of the dairy products on account of the facility with which they are kept and shipped. The chart shown elsewhere, also taken from reports of the Agricultural Department, shows their relative value. It will be noted that the homely but excellent and delicious cottage cheese has its value also. It is estimated that about one-sixth of the food of the average family, is furnished by milk and its various products.

SOME USEFUL FACTS ABOUT BEVERAGES

Both the injurious and the beneficial effects of coffee and tea are widely misunderstood, and this lack of correct knowledge of their effects and the particular ingredients in each to which those effects are due, leads to grave misapprehensions with regard to them. Everyone should know the truth for if one is wise enough to follow it no harm will be done by their use.

Those extracts that we may see quoted from some Parisian or German Journal, or any other trade journal, are almost certain to be a specious form of argument skilfully phrased to extol some certain brand by casting a false glamour over the alleged but always secret process of preparation, and this for the sole purpose of bringing much wealth to the coffers of the

manufacturers of that particular brand. Such statements are worse than valueless, because often false and misleading.

What Coffee Contains

As a matter of fact both coffee and tea are very simple as regards those elements contained in either, which affect the human system. There are in coffee only three such ingredients, and we may easily enquire into the effects of each. They are the two alkaloids, called *caffeine* and *tannin* and a mild empyreumatic vegetable oil which never does any other harm than to sometimes cause indigestion when an excess of coffee is taken.

Caffeine is the ingredient which is just now receiving most attention from the wise ones of the trade journals, who evidently know nothing about its physiological effects upon the system. Besides being derived from the dried berries of *Caffea arabica,* caffeine is also manufactured from the dried leaves of *Thea siniensis,* from the Gurana of Brazil, and from the Kola-nut of Africa. Caffeine is the alkaloid, or the active principle, of coffee. Take it away and you will take away all there is of coffee. It may be noticed that this talk originates mostly with those manufacturers who have set up a claim to some process for getting rid of an alleged poisonous element in coffee. But caffeine is not the injurious element in coffee at all. It is one of our purest and least objectionable of all brain and heart stimulants. Its use in moderate and reasonable degree is recognized as producing no harmful after-effects. Ask your

physician whether he does not regard the citrate of caffeine as one of the safest, least objectionable, and most valuable of all heart and brain stimulants, and he will give you an affirmative answer every time.

The Question of Stimulation

A word about stimulation. All this fallacious talk about "de-caffeinizing coffee" bases itself upon the assumption that anything which stimulates the brain and heart are for that reason injurious when used regularly. But that is not true. Food is stimulating, the different kinds of food only varying in this respect. A thought may be more stimulating than food, or even than the drug in question. The wakefulness attributed to the effects of coffee at night is doubtless more often due to some mental or emotional excitement of the same occasion.

It is not to their stimulating effects that tea and coffee owe certain common prejudices against them, for the modicum of stimulation is not such as to be followed by a corresponding period of depression, and is not injurious to the average person. Besides, it has been shown by physiologists that this class of stimulants (classed by Prof. H. C. Wood as "antispasmodics"), do not act above and beyond one's normal strength, but only to bring vital forces, when diminished from any cause, back and up to their normal state. This sort of stimulation is sometimes quite necessary, and is never harmful.

Of tannin, the other alkaloid found in coffee, nothing favorable can be said. It is purely a vegetable astringent. Its deleterious effects as causing chronic

constipation are therefore generally understood. Tannin occurs in great abundance in oak and other barks, and is the active principle of almost all the vegetable astringents except kino and nut-galls. Useless as it is, however, it is all there is left of coffee when the caffeine has been "extracted."

What Tea Contains

Tea, the favorite drink of women in this country and of everybody in England is even more simple in its composition than coffee. It contains caffeine in practically the same strength per cup as coffee does. Yet we never hear of any process for extracting the "poisonous" caffeine from tea. It is to the caffeine found in tea that it owes both its flavor and its usefulness. Tea does not contain any vegetable oils, which accounts for its better agreement with the digestive process than coffee. But tea does contain tannin in very much larger proportion even than coffee does, and it is to this that the harmful effects above mentioned (constipation), are due.

How to Make Tea and Coffee Properly

The one redeeming fact about the occurrence of tannin in both tea and coffee is that being much less freely soluble than caffeine, which is the desirable element in either, it is not found in an appreciable amount in either tea or coffee when properly made. The secret of making coffee so that these harmful ingredients may not be extracted, but may be left in the "grounds" is to draw and use it as quickly as may be after it has reached the boiling point. By so doing we get the caffeine only, and the injurious ingredients are left behind. The so-called "de-tan-

nated" coffee might be all right if the tannin were actually extracted, which, however, was not the case in some samples tested by the writer. Percolated or "drip" coffee is excellent because the tannin and oils are by this method extracted.

These precautions as to the making of coffee apply with especial emphasis to the brewing of tea. Every intelligent tea drinker realizes the difference between the delicate flavor of a cup of tea freshly and rightly made, and one that has been allowed to stand for even a few minutes after steeping. The freely soluble caffeine is extracted from the leaves immediately by boiling water. Then, in three or four minutes the leaves begin to yield their tannin, which is much less readily soluble, and an otherwise delicious, cheering and harmless beverage has thus been made both obnoxious to the delicate taste and positively harmful to the system.

Caffeine Not Injurious

In so far, then, from the caffeine in tea and coffee being injurious, it is the one ingredient in either to which they owe their very general acceptance—aye, and their usefulness as staples in the dietary of mankind. The reason that none of the so-called "cereal" coffees, do or even can supplant them is that they all lack this very ingredient, caffeine. The harm that coffee may do belongs, not to the caffeine it contains, but to the way in which its vegetable oils and its tannin may impair the digestive process. Through this impairment, symptoms of supposed "nervousness" sometimes arise, but the way to avoid these is

to take the favorite beverage when freshly made in accordance with the above suggestions, and in moderate amounts and strength. One cup of coffee at one or two of the meals, and of tea at the other meals will injure no one. On the other hand the pint of strong coffee provided in our Army ration for each man three times a day is injudicious and does much harm, especially as it is usually boiled vigorously in the making.

Tannin Interferes with Digestion

Roberts found that tea taken with bread and other starchy foods interferes with their digestion. He attributes the interference to the tannin found in tea, as above stated, but found that tea, brewed for two minutes appeared to be as bad as when brewed for half an hour. A speck of soda added to the tea made it all right. He also found Chinese teas preferable to the Indian teas in this respect.

Coffee also retards the digestion of bread and potatoes, but does not interfere with the digestion of salt foods, ham, eggs, etc. Tea is less objectionable when milk is added. Caffeine, the alkaloid above mentioned as found in tea and coffee, really favors digestion. It is the other ingredients in our favorite beverages which do the mischief. Cocoa is better for a person suffering from acid dyspepsia, but irritates some stomachs on account of its large percentage of fats.

When to Take Tea and Coffee

It appears that both tea and coffee do better and do less harm when taken into a stomach which is neither very full nor very empty.

The effect of the tannin is purely local. The volatile oils in coffee are slightly stimulating. Caffeine is decidely stimulating to the heart, and through the nerve centers to the brain.

Hot tea warms the cold body by dilating the superficial blood-vessels and thus determining the blood to the skin. So, too, it cools the over-heated body. Iced tea cools only by the same means that any other iced drink does, namely, by absorbing from the tissues just so much heat as it takes to warm it. The quantity of an iced drink taken is therefore the main question.

Shall We Use Tea or Coffee?

If tea or coffee do not interfere with digestion or excite the nerve system unduly, and do not cause chronic constipation, they can be taken without harm. If digestion is "slow," coffee is less harmful than tea. In enfeebled digestion avoid both tea and coffee. It is better also to avoid either tea or coffee with or after "meat dinners." If afflicted with chronic gastric catarrh take neither tea nor coffee.

Coffee and tea both require about one and one-half hours for digestion. Chocolate requires more than twice that time on account of the fats it contains. But while coffee and tea and cocoa are not foods in any sense, only stimulants, chocolate is. A half-pint of milk and two ounces of chocolate yields 400 calories.

Increases Bodily Waste

Caffeine contained in either tea or coffee tends to increase rather than to diminish bodily waste and is therefore not good in wasting diseases.

The precise effect of either tea or coffee, as shown by experiments in which the strength and staying powers were measured by the ergograph, is to stimulate but not to furnish food to a set of muscles. That is, they both abolish fatigue and relieve one of the sense of weariness, but, do not really nourish the body. After a time the muscles will lose their strength, and become exhausted, and then the caffeine will no longer revive them.

PART XV
HOUSEHOLD HINTS

"Some day the wise man will attach the physician to his family, not to cure diseases but to prevent them. As a business matter it will be more economic."—DR. JAMES P. WARBASSE.

CHAPTER ONE

HOUSEHOLD HINTS

ADULTERATION OF GROUND SPICES. The Connecticut State chemist found in ground peppers: Wheat, corn, linseed meal, sandalwood, bean shells, buckwheat, red sawdust, dyes, cornmeal, rice, sand, sago, pepper shells, cocoanut shells and dirt.

In other ground spices he found: Cocoanut shells, clove stems, rice flour, rice hulls, mustard hulls, tumeric, charcoal, sand, gypsum, sawdust, potato flour, wheat, cornmeal, bark, ground shells, sandalwood, crackers and buckwheat. *Moral: Do your own grinding.*

ALBUMEN occurs in the white of eggs to the amount of 12 per cent.; in watery part of the blood of meats 7 per cent.; also to a lesser proportion in lean meats, brain and nerve tissues. Vegetable albumens are found in saps and in stems of peas; in the seeds of grasses; and in nuts, potatoes, turnips, carrots and cabbages.

ALMONDS, to blanch. Soak in warm water till the hulls peel off, then dry.

AMBER, to mend. Oil the broken surface with linseed oil. Wrap in paper and hold near a gas jet till sticky, then bring together and hold till cold. Polish with whiting and olive oil, and rub with soft flannel or felt.

ANTS, to destroy. Take of sulphur half pound and of potash one-quarter pound. Melt the two together in an earthen vessel till they unite, then cool. Then break and beat to powder. Dissolve a little of the powder in water and sprinkle about their haunts.

ANTS, BLACK, to drive away. Sprinkle about leaves of green wormwood.

ANTS. Both red and black ants can be driven away by sprinkling powdered borax or by squirting spirits of turpentine into their nests and the cracks through which they come. Or sink into the ground near their nests bottles of water with a little sweet oil on top. They drown in hordes, and soon disappear.

ARMY WORMS can be stopped by sprinkling strong salt solutions just ahead of them.

BAKING POWDERS. There is an immense profit in these very necessary powders as they are usually manufactured and sold. Otherwise manufacturers could not do the extensive advertising they do. I give two receipts for very good baking powders which show what some of them at least can be made for. These are taken from the Scientific American handbook.

℔ Acid phosphate of lime, 1½ lb.
Bicarbonate of soda, 1 lb.
Powdered starch, 1¼ lb. Mix.

At the rate of 7½ cts. per pound for the phosphate of lime; 3⅛ cts. per pound for the soda; and 2½ cts. per pound for the starch, this baking powder costs only 4¼ cents per pound.

℞ Tartaric acid 1 lb.
Bicarbonate of soda 1 lb.
Powdered starch, ½ lb. Mix.

Costs 11¾ cts. per pound.

BED-BUG POISON. A strong solution of the bichloride of mercury (Corrosive Sublimate) has been sold and used so much for this purpose that it has come to be called "bed-bug poison." It should never be used. I have personally known of deaths from taking by mistake a drink from a bottle of bed-bug poison left standing on the pantry shelf. It is a violent poison, and without odor to warn people against its presence. Spirits of turpentine is used with good effect by many, but a better and surer destroyer of the pests still is Persian Insect powder, or pyrethrum, blown into the cracks and all places where they can hide.

CABBAGE WORMS, to destroy. Sprinkle ice-water on the cabbages.

CAMPHOR fumes will drive away mosquitoes. Evaporate a lump of camphor on a kitchen spoon over a flame; or saturate a sponge with the tincture of camphor and hang it up in the room, and the mosquitoes will disappear.

CORNED BEEF, to make the brine for. To each gallon of water add one and one-half pounds salt, one-half pound sugar, and one-half ounce each of saltpeter and potash. Boil, skim, and when cold pour over the meat enough to cover it. (Scientific American.)

FLIES, to destroy. A simple and cunning fly trap can be made by taking any vessel which has a smooth rim,

filling it partly full of soapsuds, and pasting over it a paper which is smeared on the under side with syrup. Now cut a hole or slit in the paper large enough for flies to get through. Attracted by the syrup the flies will enter, and, unable to get out, will drown by the hundreds.

FLIES, MOSQUITOES, to keep away. The mixture sometimes sold to rub on the hands, face and neck for this purpose is made of: Oil of pennyroyal one ounce, oil of sassafras one ounce, and olive oil two ounces.

FLY-SPECKS are easily washed off with old ale or stale beer.

GELATINE. A most excellent light, digestible and stimulating dish for the sick is made of a solution of gelatine. One ounce to the quart of water makes a two per cent. solution. It is digested in about one hour. In acid dyspepsia it serves to "fix" the acid, that is, in effect to neutralize it. It is highly but not rapidly stimulating, the maximum effect being reached in from one to two hours.

Gelatine is not exactly a "tissue builder" for it is readily consumed. It is, however, a "protein sparer," the best of all. Its value in this respect is double that of sugar. It has been shown to save half its weight of proteins. It is a good dish to use in all wasting diseases, not particularly economical, but excellent.

GRASS will not grow up through the walk if you scrub the walk with salt water. A little soda added to it strengthens the action.

HARDWOOD, floor, furniture and woodwork polish. Take

one part linseed oil and two parts turpentine; shake together in a bottle, and apply with woolen cloth, then polish with another cloth. The turpentine cleans the wood and the oil gives it a polish which is equal to a coat of varnish. The surface is not left sticky.

HENS, to make lay in winter. The Scientific American says that a tablespoonful of the following powder mixed with the dry food of twenty hens will make them lay during the winter: Take phosphate of lime, or powdered egg-shell, four ounces; sulphate of iron, four ounces; powdered capsicum, four ounces; powdered fenugreek, two ounces; black pepper, one ounce; silver sand, two ounces; and lentils or powdered dog biscuit, six ounces.

On the other hand, Mr. Thomas Myers, the oldest living manufacturer of poultry spices, says that poultry should not have pepper or capsicum in their food.

INSANITARY RESULTS OF KEEPING POULTRY AND PIGS. Chickens and pigeons may be permitted to become nuisances about a home. No chicken or pigeon or pig should ever be allowed about a dairy or a milk farm. Cistern water from roofs frequented by pigeons is dangerous. If a chicken or any other domestic animal is found to be seriously ill the best and safest way is to have it killed, and buried deeply after having been first covered with lime or ashes.

INSECT BITES, to relieve the pain of. Dissolve one dram of menthol in two ounces of alcohol and apply.

KEROSENE EMULSION. To make an emulsion of kerosene oil, take of the oil two parts and of water three parts,

also half a pound of soap to three gallons of the mixture. Heat the water and soap and add it boiling hot to the oil. This is good for spraying any kind of shrubbery or trees.

LABARRAQUE'S SOLUTION, a most useful and non-poisonous disinfectant is made as follows: Take chloride of lime two ounces, carbonate of soda four ounces, water forty ounces. Mix the chloride of lime with thirty ounces of the water, dissolve the soda in the remaining ten ounces of the water, add the two solutions together and strain or filter.

LARD, to preserve. Add no salt, but when rendering put in a handful of slippery elm bark.

LICE ON PLANTS, to destroy. Use the kerosene oil emulsion described above. Or, take one-half ounce tobacco, two ounces washing soda, two ounces powdered sulphur, and unslaked lime the size of a small egg. Boil for a quarter of an hour in one gallon of water, then allow to settle and sprinkle the plants.

LIME-WATER is a very convenient aid, and should be kept in every house, if for no other reason, to make carron oil for burns. It is easily and cheaply made simply by putting a piece of unslaked lime into a bottle and filling the bottle with water. When the water is used pour on more. It keeps well. The water will take up only a small part of the lime (one-sixteenth of one per cent.), but that is all that is needed.

MEASURES:

An ounce of granulated sugar equals two level tablespoonsful.
An ounce of flour, four level tablespoonsful.

An ounce of butter, two level tablepoonsful.
An ounce of ground coffee, five level tablespoonsful.
An ounce of cornstarch, three level tablespoonsful.
An ounce of thyme, eight level tablespoonsful.
An ounce of grated chocolate, three level tablespoonsful.
An ounce of pepper, four level tablespoonsful.
An ounce of salt, two level tablespoonsful.
An ounce of mustard, four level tablespoonsful.
An ounce of cloves, four level tablespoonsful.
An ounce of cinnamon, four and a half level tablespoonsful.
An ounce of mace, four level tablespoonsful.
An ounce of chopped suet, a fourth of a cupful.
An ounce of olive oil, two tablespoonsful.

MICE, to get rid of. Add tartar emetic to the food left for them to eat, or, scatter green mint leaves about the cupboard.

POTATOES. To make them dry and fine flavored, says the Scientific American, sprinkle powdered quicklime or plaster of paris and straw in the bin or on the floor. Keep them dry.

PLASTER OF PARIS, an exceedingly useful substance about the house, is made by burning, or "calcining," gypsum. The gypsum is subjected to a temperature of 500 degrees F. till the water of crystallization is expelled. When you mend glass and earthenware with plaster of paris and it "sets," it merely takes up again this water of crystallization.

SCARS, to prevent. The Magazine of Pharmacy claims that if you will soak lint or cotton cloths with the following solution and lay them on a healing sore it will prevent the formation of scars: Take salycilic acid

twelve grains, glycerine three drams, borax four drams, and rosewater six ounces. Mix.

SALYCILIC ACID is very useful as a preservative. To keep meat from becoming tainted, rub the surface especially about the bones with it. It makes the meat tender. Wash off when preparing for cooking. Or, soak half an hour a solution containing ten teaspoonsful of the acid to a gallon of water. Fish are kept the same way.

When the meat is already "game" dip it into a solution of the acid of the strength of four teaspoonsful to the quart of lukewarm water.

Half to one-third teaspoonful of the acid to the quart of milk prevents curdling.

Butter will keep when wrapped in cloths wet with a solution of the acid of the strength of one teaspoonful to the quart.

Eggs can be kept indefinitely by soaking them for half an hour while fresh in a solution of the strength of eight teaspoonsful to the gallon. The solution must be cold, and the eggs must then be kept in a dry and cool place.

If cheese are washed in a weak solution of the acid, even after being sliced, it will not mould.

SUGAR, BROWN, PREFERABLE. Brown sugar is not only much more sweetening than white sugars are, but it is healthier also. Sugar loses much in crystallization. The clearer or more watery the crystals look the less strength the sugar has. Besides, the brown molasses which have been crystallized out have a valuable laxa-

tive effect. A good grade of brown sugar is quite as clean as white sugar is.

If people only knew how much better for general use good brown sugar is than white, they would use it more and the control of refiners would be in a measure broken up. There is neither sense nor truth in the statement so often peddled out by grocers (received no doubt from the wholesalers), that beet sugar is not as strong as cane sugar. They are exactly the same.

All the brown sugars on the market are made from cane. Raw beet sugars are not offered for sale, as they retain the disagreeable odor of the beets.

CHAPTER TWO

TOILET PREPARATIONS

FOR a few hints on the subject of the physiology of the skin the reader is referred to the chapter on Skin Diseases. So many unfounded statements are being made, and so many appeals, especially to the women and girls of the household, in the columns of magazines devoted to them, by writers who evidently know little about the skin, that it becomes necessary for each one to be able to pass judgment for herself.

Advertisers of "skin foods" and other nostrums make too many ill-advised assertions in claiming perfection for their wares.

Nourishment of the skin is an important item, but the system takes care of that. We can sometimes contribute to it by supplying protection, and possibly making up for loss of moisture, also by keeping the bodily functions in their normal state. But we cannot *feed* the skin.

The value of many of the different toilet remedies depends upon the manner of their use.

"BANDOLIN" for the hair, to keep it crimpy in moist and warm weather, is made by soaking one teaspoonful of gum tragacanth in four ounces of rose-water

for three days. Then shake well and it is ready for use.

Another way, highly recommended, is to put two tablespoonsful of flaxseed into three pints of water, boil five minutes, strain and bottle for use. Either is applied with soft cloth or with the hands.

BENZOIN CREAM. One of the best applications to preserve the smoothness and beauty of the skin is the compound tincture of benzoin, when made up into the following mixture:

℞ Compound tincture benzoin (Friar's balsam), ½ dram.
Glycerine, 1 dram.
Water (or rose-water), 4 ounces. Mix.

The water should be used slightly warm to mix well, and the glycerine is best mixed with the water first, then the tincture added suddenly. A slight gummy flake may form on top which means an excess of the tincture of the gum of benzoin. If so it may be skimmed off. The application is best made with a soft flannel tuft. You can make this yourself and it costs almost nothing.

Good soap is not injurious to the complexion, provided it is used with water a little warm, and is thoroughly rinsed off. Indeed it is necessary to perfect cleansing when one has been working and dusting.

BOILS AND PIMPLES indicate that not only the skin but the system is being neglected. Keep the bowels regular, the skin active and clean, the stomach in good condition, the mind chaste, and the nervous system

healthy by vigorous out-door exercise, a part of each day; bathe frequently, and pimples and boils will not trouble.

CAMPHOR ICE, of the good old-fashioned kind, relieved many a chapped lip and sore face in the days of our youth. It can still be purchased at the drug stores, but if any one should prefer to make it for themselves here is one of the ways of doing it:

℞ Oil of sweet almonds.
Rose-water, each 1 ounce.
White wax.
Spermaceti, each, ½ dram.
Camphor gum, 1 ounce. Melt together. Five drops oil of rosemary may be added if desired to perfume.

CARE OF THE FEET. Nothing is more wearying than sore and tired feet. They prevent exercise and give one a dragged-out feeling. To prevent corns do not cramp the toes up with *stockings* that are too short. They do as much harm as shoes that are too short. Bathe the feet daily at night, and then apply a mild spirit lotion, if necessary, to prevent their perspiring, or a stronger application to prevent sweating, is a *light*-red (weak) solution of the permanganate of potash. Four or five grains to the pint of water is sufficient. Don't use soap with it. Use it after the soap is all rinsed off.

CARE OF THE HAIR. Use smooth comb and soft brush. Wash the hair at least once a week in soft water. Use water which has been boiled, if not soft, and a pinch of borax may be added. Not hot nor cold, but tepid water should be used on the hair. Dry it with a soft

towel, and not before the fire. Clip the ends once a month. Brush at night. Brush the eyebrows with soft brush, and care for them as features of beauty.

CARE OF THE SKIN. It is a duty which every girl and woman owes to herself to care especially for the hands and face. It contributes to health as well as to appearance. Nothing will pay better. But this does not imply the use of nostrums and of everything that one hears suggested.

There is no better way to preserve the beauty of the natural skin (and nothing is more beautiful than healthy, normal skin), than the occasional use at night of glycerine in the way suggested, that is, after washing, and while the hands and face are still wet, put one or two drops of pure glycerine in the palm of the hand and after rubbing the hands, rub them over the face, then dry with a towel that is not too harsh. This method supplies an abundance of the needed oily substance to make the skin smooth, and glycerine does not become rancid. When applied in this way, its thirst is first satisfied and it does not irritate the skin. When rose-water is used with glycerine it should be in the proportion of about one dram (teaspoonful), of glycerine, to the ounce of rose-water.

FACE POWDERS, when needed are not harmful to the skin, and if rightly made are very beneficial. They should be not gritty, but very soft and bland. Such are the almond meal and talcum. Whiting, "Flake white," etc., are likely to be too coarse.

GLYCERINE, for instance, so much used, has a two-fold

action. First, it has a great big *thirst*. It will extract moisture from anything—from the air if left unsealed. Physicians constantly make use of this property in applying it as a vehicle for other remedies in chronic congestions. This "hygroscopic" property is what makes it irritating to the dry skin, causing redness. It should therefore never be used in toilet preparations or for toilet purposes without this thirst being satisfied by the addition of a large proportion of water.

Then you get the second effect, namely, the supply of just that kind of a bland and fatty substance needed when the skin has been deprived of its natural secretions by drying winds, or whenever moisture has been allowed to evaporate too often from the skin. This is the reason that I emphasized a proper manner of using glycerine when speaking of the way to avoid chapping of the skin. See Face, to prevent chapping of.

HAIR TONIC AND DANDRUFF CURE. I have used the hair tonic made according to the following formula in a great number and variety of cases, and have never found anything else that would do as well. It prevents the hair turning gray and stops it from falling out.

R Tincture cantharidis, 1 dram.
Spirit ammonia aromatic, 3 drams.
Glycerine, 2 drams.
Bay rum, 1 ounce.
Water, enough to make 6 ounces. Mix.

LANOLINE, or wool-fat is another of the remedies, one

kind of which is deprived of its moisture in the manufacturing. It is called "anhydrous" lanoline. Lanoline is an exceedingly valuable application in itself, and makes a good medium for the use of other remedies, but the *hydrous,* or watery lanoline should be purchased, or else some watery ingredient, like rosewater, be mixed with it.

OILY AND FATTY substances are as a rule not good for the skin, and no woman with a good complexion is in the habit of using them. A small proportion of glycerine, hydrous lanoline and almond oil are about the only ones that should be allowed. *Almond meal* is a very soothing remedy, and is used a great deal in the best preparations.

PEROXIDE OF HYDROGEN destroys the cuticle or outer layer of the skin when its application is continued for some time. You can see this by its effect on your fingers. Applied pure it is valuable to remove freckles, but otherwise should be diluted for skin applications. It is merely a compound of the atoms which form water, plus an extra atom of oxygen in each molecule. It owes its effect to its readiness to give up this atom of oxygen, and is therefore an *oxidizing* agent.

It is by this means that the peroxide of hydrogen bleaches other substances and also destroys pus, and these are its two valuable qualities. For all purposes except for removing freckles it should be diluted with three or four times its volume of water.

TOILET CREAM, made by Squibbs, is an even better pre-

paration for the lips and face, and is not expensive. It is antiseptic, and therefore will help to remove pimples, and it relieves itching. It is furnished both in collapsible tubes and in small jars.

To THE YOUNG MAN: Learn to shave yourself, and you will *save yourself* much trouble, a good deal of time, and not a little expense. To keep your razor sharp strop it by moving it *straight* on the strop. The microscope shows the edge to be serrated, like the teeth of a saw. Always strop it before putting it away, so it will be ready for next time, but more especially so that no soap will remain to rust these tiny teeth. When shaving make a very *light* stroke, a little sidewise, and pull the razor back as a skilful barber does, so that the lather remains on the skin partly over the spot you have cut over. This movement or stroke is very important. Get it and the rest is easy, for the shaving properly and perfectly will then take care of itself. If you *lift* the razor each stroke you spoil the edge. Besides, with this stroke you have a clean line of the hairs to come up against at the next stroke. Finish stropping on a soft smooth leather. Keep this clean. If it gets soapy and too smooth, wash the soap off with warm clear water.

Learn at once to shave with either hand. The left is as good as the right when you get a little used to it. Shave the right side of your face from the neck upward with your left hand, and the left side in the same way with your right hand. Then reverse this with a new coat of lather, this time shaving each side

with its own hand, also this time shaving the upper lip, and the job is quickly and neatly done, and you will never have any trouble with a sore face. A mild powder after shaving does no harm.

VASELINE, being an entirely *unoxidizable* substance, does not make a good application for the skin. A little of it may be used when mixed with other things, but for most purposes there are better helps.

CHAPTER THREE

POISONS AND THEIR ANTIDOTES

THINGS TO BE DONE: (1) Empty stomach by inducing vomiting. If vomiting already, give large draughts of warm water to assist in washing out the poison.

(2) Annul the action of the poison by giving the antidote.

(3) Help the system to eliminate whatever poison has been absorbed. Do this by large injections of warm water into the bowels, and by making the person sweat.

(4) Treat the dangerous symptoms as they arise. For prostration keep the head low and wrap body in hot blankets.

The doses when named are for adults. For children give one-fourth to one-half the amount according to age.

To INDUCE VOMITING: One teaspoonful of mustard stirred into a glass of warm water, to be repeated in a few minutes. Then stick your finger into the throat and hold it there till vomiting begins. Put the finger as far into the throat as you can. No harm possible. If mustard is not at hand *ipecac* either in the form of powder (ten to fifteen grains), or of syrup or the

wine of ipecac in tablespoonful doses (teaspoonful to a child), can be given. Follow with large draughts of warm water, then the finger in the throat.

When the poison taken was an alkali (Potash, Soda, or Ammonia), vomiting is likely to be profuse. Aid it with warm water. If the poison was opium or any other narcotic, vomiting may be hard to induce on account of the deadening effect of the drug on the terminal nerve filaments of the stomach. But try till you succeed. Warm water alone, or salt and water, with the finger in the throat, are often sufficient to produce vomiting.

ACIDS.

ACETIC ACID. Symptoms: Lips and mouth white from the effects of the caustic.

Antidotes: Baking soda, lime-water, magnesia.

Further Treatment: Give milk, gruels, glycerine, oils.

CARBOLIC ACID AND CREOSOTE. Symptoms: Lips and mouth white, skin where acid touched it, red. Odor of the acid on the breath.

Antidotes: Whiskey or alcohol freely, soaps, salt.

Further Treatment: Give vinegar or white of egg, dilute acids, castor oil, sweet oil, milk, glycerine, mucilage. Then emetic. Opiates.

CARBONIC ACID, COAL GAS AND CHOKE DAMP. Symptoms: Those of suffocation.

Antidote: Oxygen. Fresh air.

Treatment: Use artificial respiration; smart slaps

over heart; give injections of strong warm coffee; also inhalations of ammonia.

CHROMIC ACID AND CHROMATES. Symptoms: That of caustics generally and astringents.

Antidotes: Baking soda, lime-water, magnesia, and chalk.

Treatment: Give demulcent drinks of barley-water, flaxseed tea, gruels and slippery elm.

MURIATIC ACID (Hydrochloric acid, "Spirit of salt"). Symptoms: The concentrated acid colors lips and mouth *black.*

Antidotes: Any alkali, that is, soda, magnesia, lime, chalk, tooth-powder.

Treatment: Give freely gruels, starches, white of eggs, linseed tea, milk, sweet oil, barley-water or other demulcents.

SULPHURIC ACID (Oil of Vitriol). Symptoms, antidotes and treatment same as that for muriatic acid.

NITRIC ACID (Aquafortis). Symptoms: Stains the lips and mouth *yellow.*

Antidotes and further treatment same as that for muriatic acid.

HYDROCYANIC ACID (Prussic Acid). Symptoms: Prostration. Smell sometimes on breath.

Antidotes: Peroxide of hydrogen. Give large quantities of it.

Treatment: Give stimulants, aromatic spirits of ammonia, large warm injections, belladonna, alternate with hot and cold douches, and use artificial respiration.

OXALIC ACID AND OXALATES (Salts of lemon, Salts of

sorrel). Symptoms: Similar to other acids though less corrosive.

Antidotes: Do not use soda or potash. Use chalk, lime, magnesia.

Treatment: Give large injections of water, and plenty to drink. Apply hot fomentations to loins.

ALKALIES.

CAUSTIC SODA, CAUSTIC POTASH (Washing soda, Pearl ash, Lye), AMMONIA. Symptoms: Swelling and inflammation of the lips and mouth.

Antidotes: Vinegar or acetic acid well diluted with water.

Treatment: Copious draughts of warm water to assist vomiting; also vegetable acids: lemon, citric, tartaric, and gruels or oils. In addition, when ammonia has been *inhaled,* let patient smell acetic acid, hydrochloric acid, or chlorine water.

NARCOTICS.

ACETANILID, ANTIFEBRIN, ANTIPYRINE, EXALGIN, AND PHENACETIN. Symptoms: Breath gasping; skin turns purple, due to heart failure; pulse weak.

Antidotes: None.

Treatment: Empty stomach by free vomiting. Stimulate with aromatic spirits of ammonia. Give strychnine (1-30 grain and repeat) and injections of warm strong coffee.

ACONITE (Monkshood, Wolfsbane). Symptoms: Ting-

ling of lips and mouth; numbness of feet and hands; slow, full weak pulse; great prostration.

Antidotes: Strychnine (1-30 grain and repeat), potassium iodide (five to ten grains in water), or tannin (five grains), atropine or belladonna.

Treatment: Keep head low; put mustard plaster over heart, and cause free vomiting by giving mustard water.

ALCOHOL (Whiskey and wines). Symptoms: Stupor, drunkenness.

Antidotes: Emetics, strong coffee or tea, nitrate of strychnine.

Treatment: Alternate cold and hot applications or douches. Give injections of warm coffee or tea in water.

ANTIMONY (Tartar emetic). Symptoms: Vomiting and prostration; collapse; skin cold and clammy.

Antidotes: Give plenty of strong tea, tannic acid, or infusion of oak bark. Fifteen to twenty-nine grains of tannic or gallic acid in water.

Treatment: Give demulcents, flaxseed tea, gruel, milk, starch paste, or white of eggs. Morphine (¼ grain) to relieve pain.

ARSENIC (Paris green, Scheele's green, Green coloring matters). Symptoms: Intense burning pain in stomach; vomiting; purging; skin cold and clammy.

Antidotes: Emetics; copperas or dyalized iron; any oxide (rust) of iron with magnesia. The amount of iron should be twelve times the arsenic taken.

Treatment: Sweet oil and lime water, milk, raw

eggs, mucilage, castor oil, magnesia and albumen. Apply heat.

BELLADONNA ATROPINE (Deadly nightshade). Symptoms: Pupils widely dilated; mouth and throat dry; face flushed; headache or delirium and stupor.

Antidotes: Opiates and morphine; tannic acid; potassium iodide.

Treatment: Give alternate douches of hot and cold water. Hot applications to the feet. If the patient is insensible use artificial respiration.

BLUE STONE, BLUE VITRIOL (Copper sulphate). Symptoms: Vomiting, purging, griping pains; thirst, weakness, dimness of vision, and convulsions.

Antidotes: Potassium ferrocyanide (fifteen grains in a glass of water), white of egg or raw meat, shredded, in milk, etc.

Treatment: Relieve pain with laudanum (twenty drops).

BROMIDES, BROMINE. Symptoms: Great depression. Vapor of bromine is irritant.

Antidotes: Caffeine citrate (five grain doses) or strong coffee.

Treatment: Morphine to steady heart's action, and digitalis.

CAMPHOR. Symptoms: Odor of camphor, clammy skin, noise in ears, delirium and convulsions.

Antidotes: None. Give an emetic to empty the stomach.

Treatment: Apply warmth to extremities, and give opiates or chloroform to check tendency to convulsions.

CANTHARIDIS (Spanish flies). Symptoms: Burning pain and colic; vomiting and purging; great irritation of urinary organs with bloody urine; convulsions.

Antidotes: None. Empty stomach by emetics and give demulcents.

Treatment: Give plenty of barley-water, flaxseed tea, gruel, etc. Opiates for pain. Avoid all oily or greasy substances.

CHLORAL (Hydrate of Chloral). Symptoms: Heavy breathing, stupor, weak pulse, labored respiration.

Antidotes: Liquor potassae.

Treatment: Give strychnine and atropine. After stomach has been emptied give stimulants, apply heat, and use artificial respiration.

CHLOROFORM AND ETHER. Symptoms: Stupor; loss of pulse and breathing; face pale.

Antidotes: Strychnine (1-30 grain) hypodermically or by mouth.

Treatment: Give large injections of hot salt and water; or of warm coffee; lower the head and pull the tongue forward to admit air to the lungs and use artificial respiration.

COCAINE. Symptoms: Extreme agitation and prostration.

Antidotes: Tannin, or infusion of white oak bark; potass permanganate.

Treatment: Evacuate stomach with mustard and hot water. If much nervous agitation 1/4 grain doses morphine. If breathing fails use artificial respiration.

CORROSIVE SUBLIMATE, MERCURIC BICHLORIDE. Symp-

toms: Metallic taste in mouth; vomiting and purging; intense colic; membrane of mouth white and shrivelled.

Antidotes: Albuminates. Give white of eggs, milk, and raw lean meat finely chopped.

Treatment: Evacuate stomach. If vomiting is present assist it at first with large draughts of warm water. Then give all the demulcents, gruel, barley-water, mucilage, etc., that the patient will swallow.

CROTON OIL. Symptoms: Purging and depression.

Antidotes: None. Relieve irritation by demulcent drinks.

Treatment: Give morphine (1/4 grain) or laudanum (twenty drops) to check purging and control pain. Apply external heat.

CYANIDE OF POTASH, POTASSIUM FERROCYANIDE, ALMOND OIL. Symptoms: Gasping, depression, prostration.

Antidotes: Peroxide of hydrogen (large doses, diluted); or copperas (ten grains) in water diluted; tincture of iron in water.

Treatment: Pour cold water on face and chest and give inhalations of ammonia; give fresh air and external heat.

DIGITALIS (Foxglove), STROPHANTHUS. Symptoms: Pulse slow; face pale; skin cold and clammy; pupils dilated; pain in abdomen with purging and vomiting; gasping; depression and convulsions.

Antidotes: Tannic acid or gallic acid, or white oak bark in water.

Treatment: Give tincture aconite (five drops): laudanum (fifteen drops) or potassium iodide (ten grains); stimulate with aromatic spirits of ammonia, and keep patient in reclining position.

IODINE, IODOFORM. Symptoms: Those of local irritation; mucous membrane of mouth *yellow;* vomiting matter of a bluish color, or turns blue when it touches anything containing *starch.*

Antidotes: Starchy substances.

Treatment: Give demulcent drinks and gruels, elm bark, etc. Relieve pain with morphine (¼ grain), or laudanum (fifteen drops), repeated if necessary.

LEAD. Symptoms: Colic, cramps, paralysis, and convulsions.

Antidotes: Dilute sulphuric acid; sulphate of magnesia (Epsom salts).

Treatment: Cause vomiting. Give large doses of Epsom or Glauber salts. Also milk or demulcent drinks. Give opium or morphine for pain.

MUSHROOMS, TOADSTOOLS, FUNGI. Symptoms: Colic; muscular weakness; vomiting and purging; dilated pupils; mental excitement.

Antidotes: None. Empty the stomach first.

Treatment: Give large dose of castor oil; apply heat externally; stimulate with belladonna (twenty drop doses of the tincture every hour).

OPIUM, MORPHINE, LAUDANUM, CODEINE. Symptoms: Sleepiness and stupor with pupils much contracted; respirations are much slower, skin cold and clammy, and face pale.

Antidotes: Belladonna (and atropine); permanganate of potash; tannin.

Treatment: Do not exhaust patient's strength by walking. Whip the skin with small switches or twigs. After emptying stomach give strong coffee by mouth or bowel. Give inhalations of amyl nitrite. Keep up breathing by belladonna (doses repeated), and artificial means.

PHOSPHORUS, MATCHES, RAT POISON. Symptoms: Pain in abdomen; vomiting and purging, phosphorus smell.

Antidotes: Charcoal and lime-water.

Treatment: Give emetics. Do not give oil or fat. Give spirits of turpentine in emulsion with water added. Then give magnesia or mucilage.

POISON OAK. Symptoms: Local. Eruption on face, arms, or neck.

Local. Eruption on face, arms, or neck.

Antidote: None.

Treatment: Get the following lotion made at drug store and apply freely: two drams lead acetate (sugar of lead) and four drams sal ammoniac or muriate of ammonia, in eight ounces of water.

POTASH. See *Alkalies.*

SNAKEBITES. See *Stings* and *Bites,* which are mentioned elsewhere.

STRYCHNINE, NUX VOMICA. Symptoms: Muscular twitching bordering on convulsions; spasmodic.

Antidotes: Bromides and chloral.

Treatment: Empty stomach thoroughly; then give

tannic acid (thirty grains) in water; or decoction of oak bark; chloral hydrate in half dram or bromide of potash or of ammonium in dram dose. External heat.

TOBACCO. Symptoms: Blanched face with vomiting and prostration.

Antidotes: Tannic acid or decoction white oak bark.

Treatment: Keep patient lying down. Apply heat to body. Give strychnine (1-30 grain dose). Also stimulate with the aromatic spirits of ammonia. Then afford fresh air and await results.

ZINC (White vitriol). Oxide of zinc is not poisonous. Chloride and sulphate may be.

Symptoms: Great depression, pain and vomiting. If the chloride has been taken, the mouth will be inflamed.

Antidotes: Soda, carbonate or bicarbonate (baking soda).

Treatment: Give soda in water; or milk; white of eggs; and mucilage after the stomach has been emptied. Morphine or laudanum for the pain if excessive.

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